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The Rhetoric of the Scientific Media Hoax: Humanist Interventions in the Popularization of Nineteenth-Century American Science

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The Rhetoric of the Scientific Media Hoax: Humanist Interventions in the Popularization of Nineteenth-Century American Science

by

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Dedication

I give this work back to Him from whom I received it: Jeremiah 33:3

This is also for my father, Barbara Dover, and Nancy T. Harris.

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The Rhetoric of the Scientific Media Hoax: Humanist Interventions in the Popularization of Nineteenth-Century American Science

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This rhetorical analysis of scientific media hoaxes written by prominent American literary figures from 1835 to 1880 treats hoaxes as rhetorical interventions in the process of scientific truth becoming public truth. Edgar Allan Poe, Richard Adams Locke, Mark Twain, and Dan De Quille all used hoaxes to shock their readers into an awareness of the subtle shifting of the basis for determining truth in America away from humanistic epistemologies and toward scientific ones. Using contemporary discussions of each hoax preserved in archival sources, I reconstruct a set of common expectations that nineteenth century readers had about scientific culture and science news. The interaction and competition of these expectations in producing either belief or doubt in the hoaxes is modeled using a methodology derived from Optimality Theory. Redefining

hoaxes in this way—as exchanges with readers over scientific issues via news media, rather than strictly as texts—enables me to revise traditional assumptions about Poe's and Twain's use of science and technology in their writings. The concluding chapter explores the functional similarities between hoaxes and machines and suggests applications of the methodology developed in this project to problems in genre studies, reader-oriented studies of historical American literature, and the rhetoric of science. In an epilogue I analyze the recent Sokal hoax as an intervention by a scientist in a perceived movement by cultural studies scholars to recapture the right to determine truth for the American public.

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Chapter One: Looking for Hoaxes Outside the Physical Text

In October of 1862, the Territorial Enterprise of Virginia City, Nevada, reported the startling discovery of a fully intact fossilized man. The author and city editor of the paper, Mark Twain, carefully reported all the scientific particulars of the petrifaction to a readership eager for more of the recent revelations of geologic wonders such as ice ages and fossilized mammoths. Twain's story was immediately picked up by Eastern and Western newspapers and was perhaps wired as far as London—all in spite of the fact that a careful reading of the narrative betrays that the man was fossilized *sitting up* and thumbing his nose at the reader (Clemens "Memoranda" 859).

Twain was not the only writer to toy with antebellum America's fascination with science. From the mid-1830s to the 1860s, at least a dozen similar hoaxes appeared in penny dailies or literary monthlies. Edgar Allan Poe has at least four media hoaxes on scientific or technological topics to his credit. Other contributors include Richard Adams Locke, lateral descendant of John Locke and perpetrator of the famous "Moon Hoax" of 1835 that sold a record number of copies of the New York Sun; and, Dan De Quille, a coeditor of Twain's on the Enterprise, who authored numerous scientific hoaxes including the "Solar Armor" hoax in which an inventor turns up a frozen corpse in the middle

of Death Valley because the wet-sponge suit he designed to cool him down worked a little too efficiently (Fedler 40).

This roughly thirty-year heyday of scientific media hoaxing remains an unexamined and unexplained phenomenon in the history of American literature and popular science. In this project I will develop a rhetorical theory of these hoaxes. I consider them interactive events, reactions to and perpetuation of a particular *kairos*—an opportunity to speak up—prompted by increasing tensions between scientific and artistic cultures in antebellum America. This new rhetorical definition of hoaxing accounts for its rich textuality, as the hoax itself lives outside the physical text as a tense relationship between reader reactions, media reputation, and authorial intentions.

Redefining hoaxes rhetorically helps solve two major problems that plague traditional generic definitions of them: overgeneration and underspecification. Those problems will be examined in the first section of this chapter. Next, a brief history of hoaxing in the Anglo-American tradition will uncover folk definitions of hoaxes that can serve as a useful foundation for redefining them as a rhetorical genre while simultaneously helping to distinguish them from the genres they are often confused with—parody, burlesque, and satire, mainly. In the third section of this chapter, I summarize certain cultural dynamics in early nineteenth-century America that fostered hoaxing.

After laying that groundwork, I will detail the contributions that a rhetorical analysis of nineteenth-century scientific media hoaxes can make to current problems in three fields of textual criticism. Rhetoricians of scientific

genres will find that the hoax's mimicry of nineteenth-century scientific news article yields a much-needed profile of that emergent genre. For scholars of the popularization of science, or ethnoscience (cultural attitudes toward science), the hoaxes provide an opportunity to examine a rhetorical strategy of intervention by literary intellectuals in the process of scientific truth becoming public truth in America; this type of strategy is still effective today as a mode of criticizing the gaps in power and values between literary and scientific communities, as was made manifestly apparent by the recent Sokal Hoax. For scholars interested in the history of reading scientific literature in America, these hoaxes offer themselves for study as a fascinating experiment by literary authors in guessing and re-presenting readers' expectations about science and science news.

Finally and most importantly, this project is a reawakening and reworking of a historical tradition—instigated by Mikhail Bakhtin in his criticisms of the Russian Formalists and later developed by J.L. Austin and John Searle—that combines rhetorical and pragmatic-linguistic methods to examine literature in social context. Hoaxing is a social project that expands beyond the physical text to enlist an author's intentions and readers' knowledge about genres and scientific culture. Studying it requires a new methodology that can take as its basic unit of study a whole cycle of rhetorical interaction among an author, texts, a medium, and a reading community, an expansion of focus that David Kaufer and Kathleen Carley argue is crucial to understanding how media affects culture over time (Kaufer and Carley 2). This new methodology uses reader-oriented and New Historical heuristics along with Optimality Theory—a constraint-satisfaction

framework borrowed from linguistics—and will be detailed in the final section of this chapter.

Physical hoaxes—faked fossils and artifacts—proliferated in the period under examination here, and along with the media hoaxes, they constitute a text of both cooperation with and resistance to the project of "real" science in antebellum America. Hoaxing is unquestionably a major factor in the development of American science, along with the gradual expulsion of the "pseudosciences" like mesmerism, alchemy, and phrenology from the ranks of the professional sciences. This social history of hoaxing is intriguing but is beyond the scope of the present study. Alexander Boese's book, The Museum of Hoaxes, along with his dissertation on antebellum hoaxing (in progress at UCSD), addresses the interaction of hoaxing with the scientific community. James Cook's new book The Arts of Deception connects hoaxing with antebellum fascination with authenticity and fraud. These social connections, especially the status of antebellum science and pressures of industrialization and immigration on the American reading public, enter into this project because they are crucial to reconstructing the rhetorical opening that writers like Poe and Twain entered with their hoaxes. However, in order to hold in view and treat with rigor the complex of relationships hoaxes construct between authors, media, and readers, I have restricted my inquiry to scientific media hoaxes—journalistic accounts of scientific discoveries or technologies that seemed factual to many readers but that were later revealed to be authorial inventions.

1. PREVIOUS HOAX SCHOLARSHIP

The scientific media hoaxes considered in this project have until this point remained almost entirely unstudied. Scholarly work on the genre has overall been hampered by a New-Critical fixation with the physical text that is ill-equipped to cope with the tendency of hoaxes' generic status to shift and even dissolve over time. These methods produce a theory of hoaxes that ignores their reception and thus can neither distinguish hoaxes from related genres nor describe the unique relationship a hoax constructs between author, audience, and medium.

Most treatments of hoaxes in books, articles, or on the internet are essentially anecdotal. One of the most thorough of these is Fred Fedler's historical survey, Media Hoaxes. In it Fedler provides all the publication facts of many of the hoaxes considered in this project along with plot summaries and stories of their effects on readers. However, Fedler offers no analysis of why the hoaxes worked or did not, and he chalks up the phenomenon to a lack of objective standards on the part of newspaper editors during the mid-nineteenth century.

Americanists working on Poe and Twain, especially, have had to confront these authors' hoaxing practices at some point, and this literature will be reviewed more completely in the chapters on the individual authors. However, some representative examples will serve to indicate that this work has been largely author-biographical and New-Critical. Joan Ross, in her dissertation about Twain's hoaxes, scientific and otherwise, lumps together as "hoaxial" stories as different as Twain's media hoax "The Petrified Man" and his novel A Connecticut Yankee in King Arthur's Court. She assumes rather than defines

what she means by "hoaxial," and her basic claim that Twain used hoaxes to teach his readers, and to remind himself, that every social institution was essentially an illusion conflicts with her psychological typography of hoaxes according to the comforts—authority, security, money—they offer the hoaxer. A hoax cannot both destabilize a person's reality and offer any kind of stability or comfort.

Marie-Louise Nickerson Matthew's account of Poe's hoaxing in her dissertation suffers from similar difficulties with defining hoaxes and using that definition to psychoanalyze the author. Matthew declares that all of Poe's works are hoaxes, either "external" hoaxes intended to dupe readers and prove Poe's superiority, or "internal" hoaxes Poe wrote to give himself a "provisional" fantasy of psychological stability (Matthew 3). This classification breaks down because Matthew does not consider the self-revealing elements of Poe's hoaxes that were designed to construct some of his readers as kindred *savants*, not dupes, and that deconstructed any stability the hoax offered during or immediately after the reading experience.

The most fruitful studies of hoaxes, counterfeits, and fakes have been conducted outside of literary and rhetorical studies, in the fields of social history and science studies. In The Counterfeiters Hugh Kenner develops hypotheses about how fakes and counterfeits function in society that can be productively extended to a study of scientific media hoaxes. While many of the historical counterfeits Kenner studies are not textual, he does consider Swift's satiric practices in A Modest Proposal among other texts. Kenner argues that the principal social benefit of a counterfeit is the hyper-awareness it confers upon its

viewers, once they have recognized its artifice, of the "realness" of the object or skill the counterfeit is imitating (Kenner 30). So, Maelzel's chess-playing automaton, once Poe exposed it as a fake, highlighted the inimitable power of the human strategic faculty. This special co-dependence between artifice and "reality," and between belief and doubt, will prove crucial for this study of hoaxing, which seeks to locate the effect of a hoax in the reader's perception of reality.

Why has there been no scholarly treatment to date of these nineteenth-century scientific media hoaxes by Americanists or rhetoricians? First, media hoaxes in general have suffered from their association with mass culture, which at least until the 1960s was considered beneath the dignity of literary study. Certainly, communications and journalism departments have been consistently concerned with the historical rhetoric of the news, but in these types of analyses, of which Fred Fedler's is a prime example, hoaxes are dismissed as a funny but unfortunate epiphenomenon of the "Dark Ages" of the penny press and yellow journalism. More problematic for the study of hoaxing, however, is an active folk definition of the practice that contains promising elements but still fools us into thinking we know what hoaxing is without having to explain or examine our assumptions. All of the studies reviewed above labor under this folk definition; they do not offer working definitions of hoaxing because they *assume* we all know what the newscaster means when she reports on the latest "anthrax hoax," the "Sokal Hoax," or a "fossil hoax." In daily use, the word "hoax" overgenerates to describe any situation in which the public initially mistakes an object or

communication. It also connotes a sense that someone has intended this misapprehension. This may be another cause for the critical neglect of hoaxes—their sticky association with the intentional fallacy. If people misapprehend a message or object, does the originator of the message or object have to have intended to fool people for it to be considered a hoax? The question of intentionality will be taken up in the chapters on each author's hoaxing and will be settled as far as possible in the conclusion to the project.

A rhetorical redefinition of hoaxing, recognizing its expansive social textuality, will help clarify the useful aspects of the folk definition of hoaxing while constraining it from overgeneration. The methodology of this project outlined at the end of this chapter instantiates these rhetorical goals. However, to avoid the problem of defining hoaxes circularly—as essentially rhetorical simply because the methods of this project are rhetorical—I will begin with the folk definition of certain famous historical hoaxes. I will show how that definition and some careful attention to the context of the hoaxes can build a negative definition of hoaxing by distinguishing a hoax from genres it is often conflated with: satire, burlesque, parody, fraud, tall tale, and in the case of scientific media hoaxes specifically, science fiction.

2. A BRIEF NATURAL HISTORY OF HOAXING

The word "hoax" is an industrial-age addition to the English language, according to the second edition of the Oxford English Dictionary; it first appeared in 1808, just a decade or so before the scientific hoaxes in question began to

appear.[1] But the roots of the word can be traced back about two hundred years earlier to the phrase "hocus pocus," apocryphally considered a parody of *hoc est corpus*, which a Catholic priest would intone during the Eucharist as the host underwent transubstantiation. Since this project is in large part a definitional argument, however, we should not accept this definition implicitly. In this section, I undertake a brief survey of famous rhetorical exchanges that have been recorded historically as hoaxes. By accepting and analyzing this folk classification to see how it demarcates hoaxes from closely-related genres, I will arrive at the following list of hoax features that must be accounted for by my new rhetorical definition. These features, unique to hoaxing, are as follows:

- Treatment of particular societal tension(s)
- Resistance to closure
- Parasitism on other genres
- Display of genius of hoaxer
- Construction of agonistic relationship between author and reader
- Argumentation at the stasis of existence
- Effacement of textuality

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[1] The first hoax mentioned in the OED was the Great Stock Exchange Hoax of 1814, where a man dressed as a British soldier landed in Dover and traveled to London announcing the defeat of Napoleon. It took a few days to get word that in fact Napoleon had defeated Blucher, and in the meantime, the news of "victory" caused a boom in the London stock exchange. As it turned out, the "soldier" was in the employ of two Members of Parliament and a financial adviser, who all profited from the spike in stock prices by selling their shares. Because of this mercenary angle, the whole matter is more a fraud than a hoax, as will be argued shortly, since the revelation of the trick was the last thing the perpetrators wanted.

- Destabilization of reality
- Construction of insider/outsider dynamic
- Division of audience according to differing world-views
- Dependence on news media

These features will all emerge during the following historical analysis, beginning with the first recorded media hoax, by Jonathan Swift, and the ways in which it clarifies the differences between hoaxing and satire.

2.1 Swift's hoax and satires

Alexander Boese's Museum of Hoaxes provides the most complete chronology of Anglo-American hoaxes currently available. The first published hoax on his timeline is a fake almanac by Isaac Bickerstaff in 1709. Bickerstaff, better known to us as Jonathan Swift, predicted the death of famous astrologer John Partridge and backed up that hoax with a fake obituary for Partridge printed on the day he was supposed to have died. Swift supposedly concocted his almanac to embarrass Partridge publicly, and indeed, Partridge stopped publishing his own astrological almanacs for a period of six years after the hoax (Boese Predictions).

Contrasting the Bickerstaff almanac with Swift's later inventions Gulliver's Travels and A Modest Proposal helps distinguish hoaxes from satire. All three works were published widely and anonymously (the first Irish edition of A Modest Proposal was signed "Dr. Swift," but the English editions were not). All three were designed to publicly humiliate a person or group of people. But the latter two were satires; they could not have been taken seriously past a few

sentences' reading, the one espousing cannibalism, and the other introducing talking horses. The hoax almanac, on the other hand, was meant to be believed by readers and *was* believed, as Partridge himself reportedly learned after a local priest knocked on his door the day of Swift's phony obituary to consult on funeral arrangements (Boese Predictions). Two groups were meant to be embarrassed by the almanac: Partridge and other astrologers on the one hand, and the gullible readers who believed in astrology on the other. The readers, by believing the almanac, became unwitting targets of Swift's two-pronged attack.

This central difference between Swift's satires and his hoax, hinging as it does on the role of the reader, points out that distinguishing a hoax from a satire is almost impossible at the level of the physical text, because a hoax shares many textual characteristics with satire. Dustin Griffin's Satire: A Critical Reintroduction redefines satire against its traditional classification as a comedic genre that offers its readers criticism of elite classes and standard mores, catharsis for potentially explosive social tensions, and a satisfying sense of closure. Griffin claims that, in reality, satire is more complicated, deconstructing the "safe" critical distance it offers its readers even as it constructs it (35, 38). Four textual hallmarks of satire, according to Griffin's Post-Structural redefinition, apply to hoaxes as well: controversial topics, resistance to closure, parasitism on other genres, and display of genius.

First, hoaxes and satires are both strategies designed to redress power imbalances between conflicting cultural factions (37-38): conservatism vs. liberalism, elite vs. middle class, or in the case of Swift's hoax, science vs.

astrology. Second, although satires are responses to entrenched cultural programs and values, the satire itself is resistance, a guerilla tactic of exposure and explosion, not a method of achieving closure. Closure is superimposed on the satire by readers with counter-establishment agendas. Thus, a satire like A Modest Proposal is not really a proposal or solution at all. Rather, it performs the cruelty of the establishment (British landowners in Ireland) without offering any strategies for redressing the grievances of the Irish (95); those strategies must be brought to the reading experience by Irish reformers and other readers who subscribe to anti-establishment ideologies. Similarly, hoaxes also refuse to tie controversial issues up neatly for their readers. For those readers who "fall for it," the last stroke of a hoax like Swift's almanac is to embarrass them by revealing itself to be a fake. Once the hoax has thus embarrassed its readers, it is done. It offers no closure, no antidote or resolution to their discomfort. It does not tell them how to stop believing in astrology or what to believe in instead.

Third, Griffin points out that a satire like Gulliver's Travels has a parasitic relationship with the textual genres it imitates (3), popular travel narratives in this instance.[2] A satire makes fun of a genre or a person by exaggerating the contours of its target's conventions or character. The reader of the original genre

[2] Most of the media hoaxes in the eighteenth century were fake travel narratives, like Defoe's wildly successful and controversial hoax autobiography Robinson Crusoe. This predilection for travel adventures likely fed the desire of readers to consume everything foreign during an era of imperialistic exploration and expansion by the English and other Western European nations. Kaufer and Carley have added the suggestion that texts like Crusoe and Gulliver's Travels fed a hunger for escapism created by the oppressive work schedules and landscapes of the Industrial Revolution in England (71).

recognizes both the correspondences between the target genre and the satire, and the departures; the gaps provoke the laughter, a reaction to lack, desire, difference. This same dynamic certainly holds for a hoax like Swift's almanac, which targeted and imitated perhaps the most widely-read genre of the time (Boese Predictions; Hall 342).

Finally, satire is designed to display the genius of the satirist (Griffin 71). So is a hoax, which is one reason why revelation is so crucial to the hoax's effect on the reader. Nothing in Swift's text revealed it to be a hoax; rumor later outed Swift as the author of both the almanac and the obituary. Undoubtedly, the reputation as a wit that this hoax and his other satires built for Swift must have motivated him powerfully, for he endured censure and even imprisonment for his indirect criticisms. However, what is interesting for this project is the fact that a huge part of the action of Swift's hoax—the revelation—occurred outside the text, which is where we must look in order to distinguish hoaxes from satires.

To tease apart the rhetorical effects of these two genres, it will be helpful to apply the approach of Kaufer and Carley and consider not just the texts of satires and hoaxes, but their status as events that instantiate communicative communities—communities comprised of an author, readers, a medium, a topic/issue, and groups indirectly influenced by the communicative event. From this perspective important disjunctions between satire and hoaxing appear. Most importantly, a hoax is distinguished from a satire by its singling out its readers for criticism—not just Parliament or Irish landholders or an astrologer. Unlike a satire, which constructs author and audience as united in an act of indirect social

criticism, a hoax constructs an agonistic relationship between readership and author. The whole point of a hoax, in revealing its artifice, is to embarrass its audience into admitting the inconsistency or poor foundation of their assumptions about what holds true in the world— much like the crux of instructive embarrassment or *elenchus* that was the goal of Socrates's dialectic method.[3] Hoaxes can of course have educative results, but their refusal to offer their embarrassed readers closure by telling them what they can do to alleviate their embarrassment limits further comparison with Socrates's method.

A second distinction between a satire and a hoax is that they are arguments at different stases. Stasis theory is a Classical system for structuring forensic (courtroom) arguments, adapted by Jeanne Fahnestock and Marie Secor to the analysis of scientific, civic, and literary discourse. The Ancient Roman legal system recognized levels or stases of inquiry into a case that are reminiscent of the "Who, what, when, where, why, how" guidelines of journalistic presentation. "What happened, if anything?" provokes argument at the stasis of existence. "What sort of thing was this happening?" takes the argument to the stasis of definition. "What are the causes of this happening?" addresses the stasis of cause. "Was this a worthy or an unworthy action?" promotes the argument to the stasis of evaluation. And "What should be done about this situation?" brings the argument finally to the stasis of action (Fahnestock "Stases" 428-429). A purely text-based, arhetorical view of satires and hoaxes might rank them both as evaluative arguments. But only a satire is principally an evaluative argument,

[3] See Chapter Four for a fuller exploration of the Socratic dialectic in Twain's hoaxing practices.

designed to call into discussion the goodness or badness of a person, style, genre, or policy; a hoax, on the other hand, is an argument at the stasis of existence, playing on the question of whether some happening—or, actually, a reliable witness to that happening—holds true in the world inhabited by the hoax's readers. In other words, what Swift's readers were worried about initially was the question of John Partridge's mortality, not his astrological methodology.

Certainly, after Swift's reader was embarrassed for falling for the trick, a sort of evaluation could be inferred from that embarrassment: "Believing something just because it claims to be astrology is stupid." But that is an indirect rhetorical move of the hoax; the direct move is always to call reality and its construction into question. By contrast, "satire proper," according to Griffin, "rarely offers itself as 'objective' or documentary...Alerted by its generic signals, we are not likely to mistake a satire for fact, not likely to overlook its avowedly 'rhetorical' nature"(132). And indeed, Swift's satire A Modest Proposal alerts its readers early on that it is not to be taken seriously:

> I shall now therefore humbly propose my own thoughts, which I hope will not be liable to the least objection.
>
> I have been assured by a very knowing American of my acquaintance in London, that a young healthy child well nursed is at a year old a most delicious, nourishing, and wholesome food, whether stewed, roasted, baked, or boiled; and I make no doubt that it will equally serve in a fricassee or a ragout.

The awful shock of Swift's cannibalistic proposal steers its reader away from taking it seriously; instead, the reader makes the brunt of her angry revulsion the "cannibalistic" behavior of the Irish landlords. A hoax like Swift's almanac works very differently. It crucially counts on at least a large percentage of its readership indeed "overlook[ing] its avowedly 'rhetorical' nature" and taking it seriously as the true report of Partridge's demise (Griffin 132); if they do not, they do not put stock in astrology and thereby prove immune to Swift's attack later when his astrology is revealed to be bogus. The locus of the effect of a hoax is always in the *reader*, not in the physical text. A reader who believes a hoax like Swift's almanac, or Locke's reports of moon bison, actually inhabits a different world—constructed by her new beliefs about what is possible in that world—from the world of a reader who "sees through" the hoax and reads it from a skeptic's perspective. Hoaxes build different epistemological worlds for different readers. A New-Critical approach to classifying hoaxes according to their textual features cannot account for this fact. The whole *raison d'etre* of the hoax is to embarrass its readership for their misapprehension of the "real" world.

2.2 Parody

Eighteenth-century Enlightenment media were also fertile ground for parodies, like Pope's Rape of the Lock. Is a hoax just another form of parody, since, as pointed out above, a hoax must mimic whatever text it purports to be a true example of—whether a travel narrative, almanac, or science report?

I will argue that these genres also differ, this time on grounds of mimesis. A hoax destabilizes reality for readers, calls into question the ways in which they

verify that the world they create for themselves through their beliefs is the "real" one. Therefore, anything in a hoax's style that calls attention to its textuality—like hyperbole or punning, for example—is at least an initial hindrance to its rhetorical purpose of messing with readers' realities. Attention-getting textuality, on the other hand, is the hallmark of parody and burlesque. For these genres to achieve their critical effects, the reader needs to recognize them as texts mimicking other texts—either a whole genre of writing or a particular author's style. Pope's Rape of the Lock was only funny to readers already fed up to the gills with the bad epic poetry written in the previous century: they were familiar with the various rhetorical features Pope employed to puff up an inconsequential topic (the snipping of a lock of hair), such as the Invocation to the Muse and *deus ex machina*. Pope's exaggerated mimicry of these features constituted the bite of his poem ("Alexander"). Edgar Allan Poe's burlesques a century later, such as "How to Write a Blackwood Article," "A Predicament," or "Loss of Breath," similarly focus reader attention on the hallmarks of the gothic "Blackwood" fiction. Consider the opening sentences of Poe's burlesque "A Predicament":

> It was a quiet and still afternoon when I strolled forth in the goodly city of Edina. The confusion and bustle in the streets were terrible. Men were talking. Women were screaming. Children were choking. Pigs were whistling. Carts they rattled. Bulls they bellowed. Cows they lowed. Horses they neighed. Cats they caterwauled. Dogs they danced. Danced! Could it then be possible? Danced! Alas, thought I, my dancing days are over! Thus it is in the mind of genius and imaginative

> contemplation, especially of a genius doomed to the everlasting, an eternal, and continual, and, as one might say, the—continued—yes, the continued and continuous, bitter, harassing, disturbing, and if I may be allowed the expression, the very disturbing influence of the serene, and god-like, and heavenly, and exalting, and elevated, and purifying effect of what may be rightly termed the most enviable, the most truly enviable—nay! the most benignly beautiful, the most deliciously ethereal, and as it were, the most pretty (if I may use so bold an expression) thing (pardon me, gentle reader!) in the world—but I am always led away by my feelings. ("A Predicament," 328)

Compare this hyperbolic catalogue of tropes typical of the sensational fiction Poe himself wrote for Blackwood's Edinburgh Review to the opening of his self-described media hoax "Hans Phaall":

> By late accounts from Rotterdam, that city seems to be in a high state of philosophical excitement. Indeed, phenomena have there occurred of a nature so completely unexpected—so entirely novel—so utterly at variance with preconceived opinions—as to leave no doubt on my mind that long ere this all Europe is in an uproar, all physics in a ferment, all reason and astronomy together by the ears. ("Hans Phaall," 512-518)

Certainly both the burlesque and the hoax open with an excited and exaggerated tone. But the burlesque draws attention to its artifice immediately with its ludicrously repetitive hyperbole. "Hans Phaall," on the other hand, even though it is far and away the coyest of Poe's hoaxes, does attempt to salvage its guise as a

news story with impersonal third person narration, science journalism jargon like "by late accounts" and "phenomena," and an implicit argument that the story is true, as it will soon have "all Europe…in an uproar."

It is this argument for the truthfulness of the material presented that marks a primary difference between hoaxes and parodies/burlesques. The focus on textuality and/or style in burlesque and parody serves to shift the reader's attention away from the truth-status of the events reported in the story; for example, believing there actually was a drowning baby, a heroic diver, or a tortuous affair is irrelevant to appreciating Poe's "The Assignation." The story is parodying the Byronic pose and Byron himself (Benton 193). By contrast, what is at stake in a hoax like "Hans Phaall" or Swift's almanac, what is salient to the audience and what they must decide upon, is not primarily who is being pilloried in the story, but whether the events portrayed in the story really happened or not. So what comparison with parody and burlesque reveals about the hoax is that a hoax resists textual definition by effacing (at least initially) its own textuality and authorship.

2.3 Nineteenth-century fraud, tall tales, and science fiction in America

The differences in media hoaxing in the hundred years between Swift's and Defoe's hoaxes and the scientific hoaxes that catalyzed this project are striking. Not only are the eighteenth century hoaxes few and far between, but they are also published in pamphlet form and reflect the concerns of the English at the time with travel and foreign relations. Hoaxes in nineteenth-century American news media, on the other hand, reflect the concerns of a new republic

that is finally getting up a good head of steam, literally as well as figuratively; thus, industry and technology, politics, and the scientific wonders being discovered on a daily basis on the new continent all loom large in hoaxes of this era. Antebellum hoaxes, in further contrast to Enlightenment media hoaxes, also had at their disposal well-developed print media, including the important advents of the literary monthly and the penny daily. These advances partially account for the proliferation of hoaxing in the decades before the Civil War, as will be discussed shortly. But before we turn to the cultural *kairos* that fostered the explosion of antebellum hoaxes, it pays to distinguish hoaxing from a final crop of similar genres that sprang up at this time in response to similar stimuli: the fraud, the tall tale, and science fiction.

Warwick Wadlington in The Confidence Game in American Literature pinpoints the mid-nineteenth-century as the heyday of the con man in America. Certainly some of the same dynamics that favored hoaxing favored fraud: a population boom that forced Americans to start doing business with strangers, whether they liked it or not; a westward-racing frontier that exposed new jaw-dropping astonishments every day and that law enforcement could scarcely keep up with; and, competition for resources among immigrant groups and socio-economic classes. Why are the frauds these con men (and women) perpetrated not hoaxes, then, if they are responses to similar tensions and they both involve the duping of large numbers of people? Steven Mailloux, during his analysis of the trope of conning in Huckleberry Finn, explains exactly how he believes a fraud goes beyond a hoax:

> For a con to work, the mark must be convinced by the con man's visual and verbal rhetoric. Actual truth becomes irrelevant; what counts is successful persuasion. But the confidence man is not interested in simply performing tricks for the fun of it. He plays his game for a reason, seeking to turn rhetorical exchanges into economic ones, to transform impassioned rhetoric into cold cash. The confidence man thus attempts not only to convince, to affect belief, but also to modify actions for his own benefit. (Mailloux 62)

These mercenary concerns of fraud are probably the easiest fracture to identify between hoax and fraud. Hoaxers are after their readers' assumptions; frauds are after their cash. Certainly, hoaxers are interested in a pay-off, too, in the subscription rates that come with publicity and notoriety. But hoaxers must reveal their hoaxes to embarrass their readers. Frauds avoid revelation and hope that the assumptions you made about reality that encouraged you to give them money will remain in place so they can do it again.

A rebuttal to this argument about hoax and fraud might bring up the first hoax mentioned in the OED. The Great Stock Exchange Hoax of 1814, while not a media hoax, was all about money. A man dressed as a British soldier landed in Dover and traveled to London announcing the defeat of Napoleon. It took a few days to get word that in fact Napoleon had defeated Blucher, and in the meantime, the news of "victory" caused a boom in the London stock exchange. As it turned out, the "soldier" was in the employ of two MPs and a financial adviser, who all profited from the spike in stock prices by selling their shares.

The revelation of the trick was the last thing its perpetrators wanted, and so it seems this was a clear-cut case of fraud, rather than hoax, but the fact remains that contemporary commentary labeled it a hoax. What is to be done with this historical assessment, then? If we declare these contemporaries inadequate rhetoricians, and relabel the Great Stock Exchange Hoax a fraud instead, we risk stepping off the folk foundations of this definitional project and rendering it circular—defining a hoax as whatever we wish it to be to suit our purposes regardless of the historical data. In fact, the historical judgment reminds us that money and belief are not always segregated commodities. The media hoaxes examined in this project were also about money as their authors made a living selling them to newspapers and magazines. And the most famous American hoaxer of all, P.T. Barnum, made piles of money by making people want to see for themselves if the Feejee Mermaid were the "real thing" or not.

The best solution to this historical dilemma is to acknowledge two important differences between the goal of my project and the goals and judgments of the 1814 British media. First, my goal is to define a rhetorical genre, while the purpose of the 1814 reporters was to pass judgment on a public crisis. Beginning with the sense of shock and reality-inversion apparent in commentary about the Great Stock Exchange Hoax, I am continuing on to refine that sense into a model of how a hoax works rhetorically. That very development may be have been mirrored by the ontology of hoaxing and fraud in the nineteenth century, thus highlighting a second difference between the Great Stock Exchange Hoax and our mid-nineteenth-century scientific media hoaxes. The two phenomena are

substantially separated from each other by time, space, economy, and medium. It is probable that as hoaxing proliferated after the 1830s in American newspapers, especially, and as both British and American economies expanded to the point where people were forced to trust their money to strangers in shops and banks, hoaxing and fraud became more distinct from each other as people accumulated experience with both forms of deception. After all, these two different labels persist in the language today for a reason. In the end, the best litmus test for distinguishing hoaxing as a rhetorical genre from fraud is the presence of an indirect message. All of the media hoaxes in this project mounted an indirect criticism of the way the American public was assimilating scientific knowledge. The Great Stock Exchange Hoax was not designed to send a message, but to make a quick fortune for its perpetrators.

The boundaries between hoaxes and the tall tales popular on the mid-nineteenth century frontier are even trickier to nail down than the boundaries between hoaxes and fraud, if that is possible. Tall tales are the oral forerunners of hoaxes. This inheritance will be examined in greater depth in Chapters Three and Four on the Western hoaxers, but for now we can note that both tall tales and hoaxes play on the existence or witness of a remarkable phenomenon and that audience judgments about the verity of this phenomenon can serve to separate knowledgeable insiders in a community from impressionable outsiders. This dynamic holds when tall tales are told by a conspiratorial group of locals to a tourist in order to demonstrate his/her outsider status, as in Chapter 34 of Mark Twain's Roughing It, where frontiersmen fool a "city-slicker" lawyer into arguing

a fake property-rights case about a landslide that moved one ranch on top of another.

A crucial distinction between tall tales and hoaxes lies once again outside the physical text in the medium of transmission. Tall tales are an oral genre, whereas hoaxes rely on the relative distance and anonymity of print to fool their readers. Also, fooling people is a relatively uncommon function of the prototypical tall tale. Ormond Seavey in his analysis of Richard Adams Locke's "Moon Hoax" says that usually "both the deadpan teller of the [tall] tale and his impassive listener [are] conspirators against reality" (Locke Moon Hoax xxiii). The "conspiracy" aspect of this description of the tall tale implies it is a joint activity between teller and hearer designed to entertain and distract both of them from daily worries. Whether or not the events of the tall tale actually happened is beside the point in an archetypical tall tale like the "Pecos Bill" tall tales popular in the later nineteenth century where Bill breaks tornados like bucking broncs. A comparison of one of Mark Twain's tall tales with one of his hoaxes illustrates the differing emphasis on truth-value. The authenticity of the talkative old-timer and the lead-burping frog in "The Celebrated Jumping Frog of Calaveras County" is not what is remarkable about the story; the humor of the situation is. On the other hand, the central claim of Twain's news hoax "The Petrified Man," that a human being was found petrified outside Virginia City, is a scientific claim whose truth-value must be assayed. Twain also claims to have had in mind with "The Petrified Man" the very "unconspiratorial" aims of humiliating the local medical examiner and shaming his readers, to boot, for their naïve fascination with all

things fossilized (Clemens "Memoranda" 859). This is not a conspiratorial group of insiders putting on an outsider but rather a single journalist multiplying a practical joke through the mechanics of print into a hoax that targets his whole community. These comparisons reveal that while a hoax and a tall tale both call reality and its construction into question, the tall tale is an oral genre emphasizing conspiracy while a hoax operates at the expense of its readership.

Finally, a hoax is not science fiction. The plausibility of this distinction may seem odd at first glance, since the media hoaxes under consideration take scientific and technological topics at the very moment in the history of American literature when the first science fiction stories were being developed. Edgar Allan Poe, in fact, is still considered a pioneer of science fiction as well as a hoaxer (Franklin Future 93, 99). Science fiction, like the scientific media hoax, attests to the ripple effect in literary communities of the increasing social power of science in antebellum America. The function of science fiction is to dramatize both the best and worst case scenarios of allowing science to dictate social policy. Because of this function, science fiction critic Bruce Franklin claims that the genre helps popularize scientific ideas, i.e. inculcate them as moral and social values in lay culture (Future 96). However, since science fiction by definition does not lay claim to being a true witness of the present or future state of science, it differs significantly from hoaxes, which *do* initially claim to be reports of the real state of affairs in the world. This difference is nearly invisible in the physical text, as a comparison between the language of Poe's science hoaxes with the language of science fiction stories written by his near-contemporary, Fitz-James

O'Brien, will reveal in Chapter Two. Poe and O'Brien wrote stories on the same topics; however, Poe's were published in news media, while O'Brien's are published in literary magazines, and so O'Brien's stories never created a public stir over their truth-value. This powerful effect of different expectations about different types of media will help drive our analysis of a hoax's changing interaction with its readership over time and space in the following chapters.

3. *KAIROS*

As is observable from the history of hoaxing above, the hoax is a relatively recent rhetorical innovation, dating from the eighteenth century. The hoax, then, is an industrial genre, and this label is more than a matter of temporal coincidence. To achieve its effect on readers, American scientific media hoaxing had to wait on certain structures of material and social culture that finally snapped into alignment in the 1830s. Hoaxes could only occur in the *kairos*, or rhetorical opportunity, created when writers felt the need to interfere in the process of scientific truth becoming public truth in America. Principal among these structural elements that opened up the *kairos* were these two tensions, both intensified by the American Industrial Revolution: the social tension between the cultures of science and letters played out in the media; and, the tension between popular and specialized sectors of the American reading public.

3.1 Science and art

Poe, Richard Adams Locke, and the other media hoaxers at the heart of this project represent the mere crest of a wave of scientific hoaxes inundating nineteenth-century America—such as Maelzel's chess playing automaton, the

Kinderhook Plates (mimicking Joseph Smith's golden scriptures), and P.T. Barnum's myriad artifactual hoaxes including the Feejee Mermaid. All these hoaxes reflected the intense and very public activity of science and technology in American culture. The Industrial Revolution in Jacksonian America both fed (and was fed by) a rapid expansion in "pure" and applied science, especially in the engineering fields and in the natural sciences of botany and geology. The natural wonders of the American continent, continually being brought before the public eye by expeditions like the United States Exploring Expedition in 1838, provided a seemingly limitless body of data for measurement, cataloguing, classification, and publication. In addition, publicly visible and useful technological innovations in the first third of the nineteenth century, like the railroad, street-paving, and gas lighting, created a clamor for more research and development of labor-saving inventions. The "embarrassment of riches" of natural specimens and data—coupled with incessant nagging from citizens, business, and the government to make scientific research pay off for the public—placed a huge burden on American scientists. Scientists, at the beginning of the century, were either amateur landowners and clergy who had time to dabble in whatever scientific fields suited their fancy or scientists in the employ of universities like Harvard or Yale, whose time was divided between teaching natural philosophy and general science and keeping up with their personal researches on the side. The pressure of the data and the public eventually became too much for scientists, and so they began in the 1820s to specialize and professionalize in order to organize the workload facing American science. The professionalization of American science

also had a political agenda—to mount a patriotic, Jacksonian effort to catch up to the older and better-developed European sciences (Bruce 25-27). Gradually, a professional American culture of "science" coalesced—actually a conglomeration of specialized societies in biology, geology, physics, chemistry, botany, and even phrenology and "magnetism" (mesmerism)—whose workings removed serious scientific activity from the lay public arena. Dabblers and amateurs dropped out, unable to meet the expectations of the new scientific societies. These societies began to publish specialized journals for circulation among their membership. Only a few "general" science journals remained to communicate the real business of science to the lay reader, signal among them Yale scientist Benjamin Silliman's American Journal of Science. But these journals, too, often employed jargon and assumed a level of education not universally found in the lay readership.

At the same time this withdrawal was going on in scientific culture, a similar mechanism was at work in the culture of American literature. Increased efficiency of both human and machine labor in America created a publishing boom in the 1820s and 1830s as printing suddenly became faster and cheaper. The Koenig steam press, invented in 1823, probably represents the most significant advance in this department, along with the Fourdrinier process of paper making, developed in 1799, and the cylinder press, which the London Times began using to increase their production in 1814. All these innovations had a striking effect on American publishing. In 1825, about 100 magazines were published nationwide. In the next 25 years, that number would increase 600%

(Mott Magazines: 1741-1850 342). Book publishing, too, went through a growth spurt, especially toward the middle of the century, according to Frank Luther Mott's account in A History of American Magazines: 1850-1865. In the years between 1850 and 1862, the number of books printed in the United States increased by 400% (Mott Magazines: 1850-1865 157).

This, especially the magazine boom, was the first major surge in truly "American" texts, not just American reprints of European texts. Universities and magazine publishers in particular, began to see a need for a critical apparatus and community to organize the barrage of texts and cull a "quality" American literature from it. Accordingly, a series of university-funded literary magazines such as the Putnam Monthly and the Atlantic Monthly started to coalesce into a literary community that was unabashedly Brahministic in its membership requirements and in the tone of its rhetoric for outsiders (Mott Magazines: 1850-1865 498). Edgar Allan Poe was actually close to the vanguard in this tradition. He abhorred "puffery," the jingoistic tendency he noticed among literary "critics" in the 1830s to claim that anything written by an American author was good simply by virtue of its provenance (Mott Magazines: 1741-1850 405). As editor of journals such as the Broadway Journal and the Southern Literary Messenger, Poe became famous for "broad-axe" criticism—reviews that mercilessly catalogued the flaws of American books and called for standards of criticism that would distinguish a genre of American letters from the "rabble" (Mabbott 33). In this way, the publishing industry in America, the writers it paid (off and on and poorly), and the magazine editors who relied on this industry for content to fill

their pages—these factions began to form their own community just as specialized and perhaps even more openly anti-populist than the professional scientific communities.

And then the trouble started. As a narrative convenience, we may date it from the publication of Charles Lyell's Principles of Geology in 1830-1833 and his 1841 lecture tour in the United States (Mott Magazines: 1741-1850 446.). Lyell's Principles suggested a new chronology for geologic history, argued against catastrophic events like Noah's Flood as major geologic processes, and argued for Hutton's view that the earth was much older than traditional estimates based on genealogical calculations from the Bible. Lyell created an uproar, not just between clergy and scientists, but between and within scientific and literary communities; for, to characterize the Principles controversy as a mere matter of science versus religion is to overlook the foundation of American public thought in the textual authorities of the Bible and the Word of preachers, writers, politicians, and philosophers. Lyell essentially suggested that Truth was not to be sought in the Word, but in the World, through the seemingly anti-textual activities of observation and calculation.

Men and women of letters reacted strongly but variously to this basic claim. Some, including notably Melville and Hawthorne, saw little less than the death of the human soul in scientists' methods. Others, like Emerson, transformed an initial resistance to scientific methodology into a nearly rapturous embrace—catalyzed by a life-altering afternoon in the natural history collections in the *Jardin des Plantes* in Paris—of science as a truth-seeking epistemology on

a par with the Word and the imagination (Brown 60). Scientists, for their part, perhaps sensing an opportunity in the fracas to expand their political power and garner more funding for their research, borrowed the trope of "progress" from a rapidly industrializing society they had helped create. They used it to argue that the way they saw things was simply the way things were, and soon Americans would be forced to see them that same way. There was no escaping either Nature or Progress.

In the debate, each side had help. Science had spectacle in its corner. Past the mind's-eye of the public paraded visions of Louis Agassiz's gorgeous books full of color-plates of turtle specimens, P.T. Barnum's natural wonders in his American Museum, and public exhibitions such as the "hydro-oxygen" microscope on a tour of New York museums during 1835. In addition to these tantalizing material displays, scientists could also lay claim to a myriad of technological innovations that their researches authorized, if not actually created. However, these innovations partook in a fierce industrialization of both city and countryside that left many Americans overworked, worn out, and nervous about what machines might do to them. Public literary representatives like Melville and Hawthorne had this fear on their side when they went public with their criticisms of scientific methods and motives. The legacy of the British Romantics, who had mounted their own rebellion against an industrialization that started nearly a hundred years before the American Industrial Revolution, remained strong in the pages of novels, daily newspapers, and sermons delivered from Transcendentalist pulpits in the Northeastern states. The "machine in the garden," as Leo Marx has

termed the presence of technology in antebellum America, was a terrifying as well as a fascinating prospect to its viewers.

These tensions might be the birth-pangs in America of what C.P. Snow deemed the "two cultures controversy" almost a hundred years later in 1959. Snow complained that his physicist friends did not read literature, and his literary friends had not even the most basic working knowledge of physical principles. Snow saw a palpable threat in this lack of inter-disciplinary communication. Fresh from WWII, Snow feared that scientists unchecked by moral philosophy could wreak havoc on the world again, and he felt it was literary scholars' responsibility, as much as scientists' responsibility, to keep science grounded in an *ethos* of humanism (Snow 30). On the other hand, he credited science with an objectivity that humanists needed in order to avoid parochial infighting and arrest what was beginning to seem like a slide of literary studies into irrelevance in an increasingly scientific world. Snow's analysis was synchronic, not diachronic. He did not consider the contributions of history to the dilemma his science and literary friends faced. But in the struggles between scientists and literary figures in antebellum American over who deserved the right to write truth for the American people, we can see the nascent shape of this debate.

David Kaufer and Kathleen Carley argue that the boundaries between professional communities ossify if they specialize and remove themselves from public oversight, exacerbating the problem of inter-disciplinary rivalry. Increasing the permeability of boundaries, like the interchange Snow advocated among his friends, reduces confrontation over differences of values and

epistemology between professions (Kaufer and Carley 303). Nothing of this sort of rapprochement transpired in the battle following Lyell's Principles in the 1830s. Instead, public literary intellectuals used scientific media hoaxes to mount an attack against both scientists and the public who perhaps unwittingly supported scientists' campaign to ground America's social policy in scientific values. The hoaxes were a wrench in the gears of the popularization of ideas like Lyell's. Exploiting the public's neophytic faith in the truth and beauty of science, the hoaxes—through their dual mechanism of deception and revelation—were able to transform those assumptions into an embarrassed self-awareness. The hoaxes drew readers into admitting the foolishness of their readiness to believe anything that came stamped with the imprimatur of "science." Indirectly, the hoaxes also critiqued the scientists whose work they mimicked; the hoaxes implied by counterfeit that the scientists' publicizing of their work—if not the work itself—was a sham.

3.2 Popular and specialized reading culture

This critique by public literary figures of the mounting social power of science would not have been as effective if the hoaxers were not also able to exploit their readers' appetites for and trust in the popular media. The withdrawal of both scientific and literary discussion into specialized journals and professional societies left the lay public hungry for news of what was going on behind these closed doors and covers (Lee 3; Shapin 1001).[4] A uniquely Jacksonian social

[4] The term "elite" is often used to refer to the journals and societies forming during this period around a discourse that gradually became very difficult to follow for the readers of popular periodicals and the attendees of lyceum

dynamic of distrust intensified this desire for knowledge and control: a fear of elite, undemocratic repositories of power hidden behind the rapidly bloating federal government, a fear that manifested itself in the persecution of the Masons and the disbanding of the Second National Bank (Brown, 138).

Into this tense rhetorical vacuum stepped the genre of the popular science article, pacifying the public appetite for the most sensational of the current scientific discoveries and technological inventions with bold headlines and lots of engravings. The penny dailies sported many specimens of this new genre, and publications dedicated solely to the edification of the popular or general science reader sprang up, including the American Journal of Science (1818) and later the Scientific American (1845). These journals and papers printed renowned naturalist Louis Agassiz's latest discoveries about glaciation on their front pages but were equally likely to showcase interviews with famous phrenologists and mesmerists and accounts of hay bales mysteriously levitating into the clouds (Mott Magazines: 1741-1850 446-447). Catering to an audience hungry for scientific wonders and technological labor-and-health-saving gadgets, these ready media platforms created the perfect stage for the scientific hoaxing of Poe, Locke, Twain, and De Quille.

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lectures. However, as Roger Cooter and Steven Pumfrey have pointed out, the use of the term elite implies a higher level of political as well as cultural power, and science's "relation with dominant culture is frequently problematic" (252). In this study I will prefer the term "specialized" to refer to the increasingly esoteric science journals proliferating in Antebellum America, and "professional" to refer to the scientific societies, which became allied with university departments in the second half of the century.

Public desires constitute a powerful force driving both the form and function of communication between scientists and lay reading communities. In Counter-Statement Kenneth Burke claims that any rhetorical form both creates and satisfies desire for the reader, a desire—in the case of the "gee whiz" popular science articles of the 1830s—for identification with or control over the often alien social force of science and technology. Steven Katz adopts Burke's definition of rhetorical desire to argue that this desire for identification has led in this century to scientific discoveries being portrayed as epic quests, and scientists as heroes (Katz 384). Dorothy Nelkin in Selling Science finds this dynamic operating even as early as 1890s, as popular science articles portrayed science as a "mystical" knowledge open only to nearly superhuman scientist initiates (78). Extending these observations a few decades earlier to the public hunger in the 1830s for the quickly-distancing discourse of science, we could argue that the brand-new popular science genre was simply reinforcing a Burkean loop of desire already present in the reading culture. The public desired canals and railroads and medicines to make their lives easier, and this desire drove scientists in the form of a constant social pressure; however, scientists' discoveries and inventions also sparked desires within the public for "better, faster, more" of everything.

The popular science article also represented an important transference of trust to the popular media, a shift that paved the way for the hoaxes. Newspapers proliferated in the Jacksonian era as the population in the States expanded to the point where it was impossible to witness directly what was happening in one's own community, much less in Virginia or New Hampshire. Readers came to rely

on the news and the mail as vicarious witnesses to important social or political happenings. The political reporting during this time, in particular, reflects an awareness on the part of newspapers that they were performing an experience of virtual witness for their readers; verbatim reports of proceedings of Congress take up pages and pages of newspapers and party-published monthlies such as The American Review: A Whig Journal. If readers wanted the information they needed to vote appropriately and to make decisions that affected their families, they had to sacrifice eyewitness and personal credibility and to put their trust instead in the institution of the newspaper and the forms of its anonymous articles. Miles Orvell argues that this coercion of trust was reinforced by a mechanical model of social economy becoming increasingly current in America with industrialization. In The Real Thing, Orvell details the fascination of Jacksonian Americans with facsimiles produced by machines and argues that facsimile became an increasingly powerful trope for understanding social and commercial relationships. Stereotyping became a common way to deal with unknown social groups, as Americans adapted the model of machine replication to their social relationships. They became more and more apt to judge what they had not experienced as a carbon copy of their previous experience (Orvell xv; Seltzer 5).

A further consequence of this copying mechanism in the rapidly expanding social economy of antebellum America was that transactions with institutions were gradually substituted for transactions with acquaintances—like familiar local shopkeepers or bankers (Orvell xvii). Trust in people had to be shifted to trust in corporations and rules of operation. This shift, forced as it was

by the material conditions of a rapidly-expanding urbanized environment, created a deep unease in the public consciousness. This unease was performed in the protests mentioned above against the Masons, Rosicrucians, and the national bank; however, an industrialized corporate economy was a *fait accompli*. Even if they wished to, Americans could not shrink their society down, take the machines out of it, put things back to the way they were.

The scientific media hoaxers took shameless advantage of this coerced trust. They identified and replicated in journalistic form their readers' desires for science, technology, and mechanical facsimile. By giving readers what they wanted and then pulling the rug out from under them, so to speak, the hoaxers confirmed their readers' fears that they were being duped. In fact, the defining feature of a hoax is the moment the reader realizes she has been duped (Berkove 89; Bryant 16). In this moment the hoax reveals its devices, which amount to the reader's own assumptions that the hoax has exploited to achieve its humiliating effect. This revelation can come either within the reading experience or in its immediate context: Twain's hoax "The Petrified Man" revealed itself textually through sly details revealing that the petrified corpse was thumbing his nose at the reader; Poe revealed his "Balloon-Hoax" of 1844 within the reading context, by getting drunk and standing on the steps of the Sun trumpeting his forgery to potential subscribers. In either event the revelation crucially depended on the reader's trust in the newspapers' vicarious witness of the "real world." American society had gotten too complex for readers to be able to verify for themselves everything they needed to know in order to function in it. The hoaxes constitute

both a sharp criticism by literary intellectuals of this state of affairs and a voicing of a deep public uneasiness with it.

4. RELEVANCE OF HOAXES TO CURRENT SCHOLARLY CONCERNS

Because hoaxes operate at the nexus of scientific and literary epistemologies, because they adopt the rhetoric of popular media to criticize the specialized rhetorics of groups viewed as politically threatening, studying them necessitates multiple critical approaches. I will use a bricolage of techniques found within the disciplines of rhetoric of science, American historical reading criticism, and linguistic text pragmatics to answer these basic questions: how did hoaxers fool their readers, and to what ends? In return, the hoaxes contribute to the illumination of an issue that concerns all these schools of textual criticism: the negotiation of social reality between writers and readers through the mass media, in order to satisfy as many of the public's (potentially competing) desires and expectations as possible (Eberly 20; Kaufer and Carley 11, 267).

4.1 The rhetoric of science and its popularization

Overall, hoaxes offer key opportunities to scholars of historical scientific rhetoric in three areas: first, hoaxes are an intervention in the formation of "ethnoscience" or pervasive lay attitudes toward science in Antebellum America; we can use the resistance hoaxes represent to the process of popularization to structure that process in more detail. Second, the scientific media hoax is an understudied, machine-age genre of science writing, and the considerable documentation of its innovation and development by different literary figures over a 30-year period will enable a valuable case-study history that will utilize both

synchronic and diachronic methods of rhetorical analysis. Third, since the hoaxes ape the genre of the popular science article as it evolved from the 1830s to the 1860s, we can use the hoax to map out the key features of this genre; further, since genres index communities, we can examine through the hoaxes the public reaction to science in this key period when science was gaining enough recognition to influence ethics and politics in America.

4.11 Science popularization in nineteenth-century America

Recent discussions of popularization have focused on reframing the discipline at its most foundational level, asking if there really is any such thing as popularization, and if there is, what methods will elucidate and recuperate it historically? Ludwik Fleck's groundbreaking analysis of the propagation of scientific knowledge in Genesis and Development of a Scientific Fact (1935) marks the functional beginning of the study of science popularization. Fleck argued for a feedback loop of support and authorization between esoteric scientific communities and "exoteric" publics that revised traditional assumptions that scientific popularization was a one-way street from the lab to the lay public. Roger Cooter and Stephen Pumfrey have recently argued that key studies in the development of popularization studies have forced revisions of even Fleck's two-way model: chief among them are Michel Callon and John Law's extension of Bruno Latour's study of laboratory ecologies, which shows the enrolment of private and government agencies to be a third factor in the success of scientific research; in addition, studies of lay artisan communities like Adrian Desmond's study of nineteenth-century British craftsmen have revealed that communities of

non-specialists have consistently created their own scientific knowledge from praxis and through revision of the claims of "specialized" science to fit their own agendas (Cooter 242,250). These complications to the binary science/public models of popularization have cast doubt on the very definition of the field of study. Is there really any such phenomenon as "popularization," or is that simply a convenient reduction of the enormous, complicated work of making science to a more manageable dynamic that runs from lab to street? There is no simple solution to this problem, but Cooter and Pumfrey call for more historical studies of the making of public scientific knowledge to help put the study of science popularization into proper context (Cooter 237).

Cooter and Pumfrey's call has been answered by scholars working on the twentieth century and nineteenth-century Britain. Most of these studies have found that science is popularized by being sold as technology or paraded as spectacle. Dorothy Nelkin's study of press coverage of science since World War I in Selling Science found that the rhetoric of science journalism, from the birth of the first science writing syndicate in 1924, has pushed science in terms of the "-est": the biggest, strangest, newest, or oldest (1). Jeanne Fahnestock and Greg Myers have both inquired specifically into the adjusting of scientific claims to public desire. In "Accommodating Science: The Rhetorical Life of Scientific Facts," Fahnestock found scientists stick to forensic arguments about specific experiments when writing for each other, but when writing for the public, they make epideictic arguments, fitting their discoveries to lay readers' values and goals—which can include the "gee whiz" mode of science appreciation and the

value of “more for less,” or what science can do for the public in terms of technology and medicine to improve the overall quality of public life. Greg Myers’s study Writing Biology corroborates Fahnestock’s results. Myers compared texts two biologists wrote for disciplinary journals with the versions they wrote for more general journals; overall, he found that the popular articles focused on the natural object of the investigation from a "wonders of the world" perspective, while the expert journal articles focused more on the experiment, its conditions, and methodology.

This shift from limited experimental claims to bolder, value-laden claims in science popularization has been documented well before the 20th century. In his landmark study of the Philosophical Transactions of the Royal Society of London beginning in the 17th century, Charles Bazerman found that contributors cast their scientific work as revealing the spectacle of God's creation for a "novelty-hungry" readers (Shaping 133). Steven Shapin in “Pump and Circumstance,” his study of English chemist Robert Boyle’s experimental rhetoric, found that Boyle coped with audience expectations in an ingenious way. He included detailed engravings of all of his apparatus so that the lay reader or an experimenter in some field other than chemistry could “virtually” witness Boyle’s experiment by examining his equipment and methods while reading.

Studies similar to these have helped structure the “wonder-business,” as Mark Twain deemed it, of bringing science news to the public—especially in the seventeenth, eighteenth, and twentieth centuries (Clemens "Memoranda" 859). The methods developed in these studies have recently been fruitfully applied to

nineteenth-century British science popularization. Jan Golinski has analyzed the "techniques, instrumentation, and discourse" that chemists Joseph Priestley and Sir Humphrey Davy utilized to publicly enlist chemistry as an institution preserving middle-class values from the Enlightenment to the early nineteenth century. James Secord conducted a case study in the popularization of evolution by tracing the public life of a single Victorian text, the anonymously-published Vestiges of the Natural History of Creation (1844), through diaries, news clippings, and memoirs. Greg Myers's study of the popularization of thermodynamics considers the joint construction of popular Victorian *topoi,* or public commonplaces, by lay and scientific communities. In accommodating thermodynamics to a lay audience, physicists actually adopted a dominant *topos* in Victorian culture, "change is good." But in this attempt to accommodate their findings to Victorian values, the physicists, whether knowingly or not, contributed to popular culture two new *topoi* for understanding and plotting the trajectory of social relationships into the troubling future: conservation of energy and entropy.

These historiographical techniques—analyzing archived reader reactions to science and recuperating key *topoi* that accommodated scientific principles to lay values—need to be applied to antebellum America (Cooter 237n; Shapin Science 1001). Just as the industrial revolution in England was a pivotal period for the rhetoric of science, as lay people began to talk and write about science and technology as major figures in their social landscape for the first time in history—so with the mid-nineteenth century in America. The scientific media hoaxes identified for study in this project constitute an *intervention* in the process of

science popularization during this time. Hoaxers like Poe and Twain exploited reader assumptions about science and science news to fool their readers into believing the hoaxes were true witnesses to scientific reality. Then, by revealing the hoaxes, either textually or contextually, the authors exposed the unconscious expectations the public had about science as vehicle to the Truth and implied that those expectations were unwarranted.

Poe and Twain could only accomplish this effect by successfully identifying and re-performing in their hoaxes their readers' expectations about science and science writing. These common expectations readers held, like the *topoi* Myers identified in his thermodynamics study, formed the units of exchange that science writers and readers traded in popular science articles, and in the science hoaxes. Identifying these expectations, suggesting their origins, and showing how they might have interacted with each other in the hoax-reading process are major goals of this project and its principal contribution to the study of popularization. In the hoaxes we witness a unique game in meta-popularization, as Poe and the other hoaxers strove to make the public aware of their being conditioned to accept scientific truth over the truths of faith, reason, and the imagination. And even though the particular crisis between science and art that triggered these hoaxes in antebellum America is past, hoaxing is still alive and well as a strategy of intervention in the process of acculturating readers to either scientific or humanistic epistemologies. The Epilogue to Chapter Five of this dissertation will extend findings from the historical section of the study to account for the controversy surrounding Alan Sokal's recent hoax in Social Text.

4.12 Scientific genres

Scholars of scientific genres are interested in how the genres are developed and codified over time and in how that process indexes the changing values and goals both of scientists and their readers (C. Miller 152-153). Writing these kinds of histories of genres presents special problems of data collection and methodology that have recently elicited innovative solutions. David Kaufer and Kathleen Carley combined rhetorical analysis with quantitative models of knowledge dissemination over time in their study of print culture to argue that the development of scientific journals facilitated the flow of knowledge between disciplines starting in the eighteenth century (254, 267). Carol Berkenkotter and Thomas Huckin used read-aloud protocols of scientists reading research reports, coupled with textual surveys of 350 articles from 12 scientific journals over a period of 45 years, to show that the scientific article is still changing to reflect reader preferences in the late twentieth century (Berkenkotter and Huckin 33-35). By contrast, Carolyn R. Miller focused her dissertation on a self-destructing genre. She analyzed the Environmental Impact Statement over time in concert with environmental legislation to demonstrate that the E.I.S. failed to address competing interests in its governmental readership (Miller 164). These studies all combine diverse textual and contextual approaches to write histories of the feedback loop between genre formation and reader goals and values.

A lingering problem in scientific genre research, in spite of these advances in methodology, is a tendency to read the success of certain movements in science backwards into the conditions of production of their rhetoric. In "Moving Beyond

the Moment," Danette Paul, Davida Charney, and Aimee Kendall argue that a narrow focus on the production of scientific texts often exaggerates their importance for their communities of reception. Instead, the authors argue, scholars of rhetoric of science should combine their analysis of the rhetoric of a text with analyses of its immediate reception, and its changing reception over time. Only in this way can researchers avoid applying *post hoc* judgments, based on the eventual success or failure of the *theories* the author espoused, to the success or failure of the author's *strategies* for adapting his/her claims to readers' values and interests.

With my approach to the nascent genre of scientific hoaxing, I hope to answer the challenge in "Moving Beyond the Moment," first by taking as my primary object of study the immediate reception of the scientific media hoaxes, and second, by conducting a diachronic study of hoaxes by four different authors living in different communities within the United States over a roughly 30-year period. The immediate reception of the hoaxes is accessible via the contemporary media, private diaries and memoirs of readers, and commentary by the hoaxers themselves. Each hoaxer modified the genre of the hoax for his own purposes and to fit the cultural milieu in which he wrote, and a diachronic and geographic survey of all of these hoaxes will provide a detailed history, sensitive to time and place, of the development of a unique and unstudied scientific genre. In addition, since, as Dwight Atkinson argues in his study of rhetoric of the research article, key values and contemporary issues referenced in a scientific text provide an index to "insider perspectives, and social practices or ideologies" of a given

readership, the hoaxes can provide a suggestive index to the role science played in the lives of lay readers from 1835 to 1880.

This study of hoaxing makes a final novel contribution to the history of scientific genres, and that is a rhetorical analysis of the antebellum popular science article. Since hoaxing is a meta-genre, it can serve as a useful tool for historical genre reconstruction. Like parodies and burlesques, hoaxes must mimic another genre for their effect—science news articles, in this case. In the case of the successful hoaxes, hoaxes that fooled thousands of readers, we know that they succeeded in identifying and re-performing the salient features of the science news article. If imitation is the sincerest form of flattery—or perhaps the *in*sincerest, in the case of hoaxing—it is also an excellent heuristic for reconstructing the rhetorical form of the antebellum popular science article. Much as John Swales has done for the academic article, this project hopes to do for the nascent American popular science article, positioned crucially as it was at the juncture of a social crisis between specialized and popular communities of science and literature in the mid-nineteenth century.

4.2 Reading science in nineteenth-century America

Reader-oriented critics of nineteenth century American literature currently find themselves in a difficult double bind, according to scholars of historical reading such as James Machor and Jane Tompkins. On the one hand, situated, cognitively-focused readings—like those conducted by Roland Barthes, Wolfgang Iser, and reader-response critics like Stanley Fish and Jonathan Culler—produce compelling accounts of individual processes of interpretation but still take the text

as their "primary unit of meaning," thus sacrificing a cultural perspective that would reveal the text as a "force exerted upon the world" (Tompkins 225). On the other hand, New Historical studies of reading in the nineteenth century yield rich cultural contextualization, but as a practioner of this methodology, James Machor is concerned that this broadening of focus often sacrifices the ability to account for how individual historical readers actually read (Machor x).

Empirical studies of reading are one way out of this Heisenbergian sort of inability to keep both process and reading in focus at the same time. Read-aloud or think-aloud protocols, interviews, and surveys help capture moments in the cognitive act of individual interpretation. By studying multiple readers, these studies can average findings across the group in order to discern common reading strategies. Both Berkenkotter and Huckin, and Charles Bazerman, have interviewed eminent scientists in their offices while they read experimental articles in order to discover generalities in these expert readers' pattern of skimming/reading the articles. A similar read-aloud study conducted by Davida Charney compared evolutionary biologists' reactions to atypical claims made in an article by Stephen Jay Gould and Richard Lewontin with the reactions of biology graduate students; Charney used the differences in the responses of the two groups to draw conclusions about neophyte reading practices versus expert reading practices in the field of biology. These empirical studies yield limited but suggestive claims about contextually-bound acts of reading.

However, these methods cannot help scholars studying nineteenth-century readers and reading practices. The absence in time and space of the original

readers and contexts of reading have led reading scholars either to analyze the reactions of a reconstructed "ideal reader" (usually coextensive with the reactions of the scholar), or to elaborate the reading context and culture through archival and historical research.

Hoaxes present a unique opportunity to move beyond this double-bind of reader-oriented historical criticism. They are successful rhetorical experiments in identifying and re-performing common reader expectations. In other words, authors of successful media hoaxes managed to guess correctly at least some of the expectations their readers had about news—expectations about the reality it reported, expectations about the content, style, and format of news itself. The hoaxers exploited these expectations to produce texts that readers bought as the "real thing"; then, they revealed their hoaxes publicly to embarrass readers for adhering so blindly to those expectations. In their guessing game, the authors had the immense advantage of living and reading among the people they were trying to fool. However, in many cases, the hoaxers, their readers/victims, and contemporary historians of the hoaxing events have left us a paper trail of reader responses that encode certain "sticking points" or recurring topics in debates over the truth-value of the hoaxes. These *topoi* in turn enable reconstruction of the crucial reader expectations about science and science news that the hoaxers exploited to achieve their desired goals. These recovered expectations can provide a way of explaining the many similar interpretations of the same text—"similarity" in this case defined as a function of "being fooled." The filter should enable limited claims about the culture of reading at the time of the hoaxes while

simultaneously providing a framework flexible enough to model individual experiences of the hoaxes at different times and places. The next section is dedicated to reviewing the historical justification for an expectation-based model of reading and detailing the methods for recuperating reader expectations from historical documents and modeling their interaction in reader decisions about the truth-value of hoaxes. While this new hermeneutic does not pretend to fully account for cultural context or for individual process, it does provide an extension of rhetorical methods for situating reader-oriented criticism in a specific historical moment. In doing so, it offers a way out of the double-bind of context or process that has dogged reader-oriented criticism of nineteenth century texts.

This study of hoaxing will make one final contribution to our understanding of nineteenth century rhetorical and literary practice in America, by raising the profile of a neglected American writer of the period: Dan De Quille (William Wright). Dan De Quille was a miner on the Comstock Lode before he became a successful journalist for the Territorial Enterprise in Virginia City, where he worked with Mark Twain. Most of De Quille's hoaxes were written during his tenure with the Enterprise, all of whose records for the years before 1875 burned in the great fire of that year. Lawrence Berkove at the University of Illinois, and Richard Dwyer and Richard Lingenfelter at the University of Nevada, Reno, have collected De Quille's tall tales and published them along with several scholarly articles on his journalistic and historical writings. However, very few other scholars have worked on De Quille, and no one has yet taken his hoaxing seriously as part of the impact of science on the American West. De

Quille rivals or surpasses Poe as a hoaxer, and any consideration of scientific media hoaxing in the nineteenth century must reckon with De Quille or risk under-representing a remarkable strategic move in the literary reaction to science. De Quille's science hoaxes and his historical texts, like The Big Bonanza, played a powerful role in the creation of the idea of the West—especially the conception of the West as a natural and scientific waste-and-wonderland; therefore, his cultural influence beckons examination.

5. PROJECT METHODOLOGY

My decision to focus on reading expectations is not an innovation. Reader-oriented criticism generally acknowledges that "reading is not an innocent activity," according to Jonathan Culler (116). Readers bring preconceptions with them when they start to read a text, preconceptions based on their education, their personalities, their speech communities, and other resources. Wolfgang Iser and Stanley Fish have argued that meaning-creation in reading arises from an interaction between the text and these preconceptions, which Fish calls "interpretive conventions" and Iser calls "codes" (Fish Is There a Text 16; Iser 106, 118).

In a review of the critical history of interpretive conventions, Steven Mailloux argues that they are not, as Fish and Iser have claimed, projections of real readers' preconceptions but instead are sophisticated critical conventions sustained by a community of literary critics who share a certain methodology for approaching texts (Mailloux 29). These high-level conventions do not translate well to interpreting nineteenth-century scientific media hoaxes, then, since the

hoaxes' readers were not part of reader-response critical communities. Instead, the hoaxes' success depended on uncritical, unreflexive reading. What is needed to analyze the hoaxes is a set of expectations arising from that culture of reading, from readers' habitual contact with popular science articles and with "ethnoscience," pervasive lay opinions about science in antebellum culture.

Reconstructing reader expectations is a difficult project, but a critical understanding of hoaxing cannot be formed without attempting it. Because expectations are critical abstractions, I need to address Mailloux's criticisms of hermeneutic idealism in historical reception studies. Hermeneutic idealism holds that the interpretive process can be characterized through the interpretive conventions that drive it, a characterization that could be taken to fit the proposed methodology in this project. Mailloux believes this approach falls into either one or both of two traps: "the infinite regress of conventions and the unformalizable nature of context" (Mailloux 10). I will attempt to avoid the first of these traps by limiting both context and conventions. My analysis of the reading culture of the hoaxes focuses narrowly on genre expectations and ethnoscientific expectations. In addition, although the number of interpretive games that could be played with expectations even in this selected arena may be infinite, I will constrain my focus to games concerning the truth-value of the hoaxes. I expect that certain reader expectations will emerge as being more central to and powerful in these particular epistemological games. However, Mailloux's second charge against hermeneutic idealism is more complicated to handle:

> When hermeneutic idealists attempt to describe the system of interpretive conventions that determine meaning, either they describe this system as independent of rhetorical situations or they do not realize that the conventions themselves are the topic of critical debate at specific historical moments. In either case, idealists make a mistake similar to that of realists by presupposing the possibility of meaning outside specific historical contexts of rhetorical practices. (Mailloux 16)

Talking about reader expectations is posing a level of abstraction; there is no escaping this criticism. However, it is justified *in this case* because hoaxes themselves are abstracting genres. They are meta-genres that manipulate salient features of other genres and readers' expectations about those features. To understand how these scientific media hoaxes achieved their effect with readers, we have to understand the expectations readers had about ethnoscience and science media. In order to constrain the abstraction necessary to this project, however, I will recuperate expectations only from immediate, contemporary reader responses to the hoaxes. The reception of each hoax will be considered independently, as a hoax is not a text but an event bound to a particular readership, a particular *kairos*, and all generalizations about hoaxing will be limited accordingly.

Further, reconstructed as they are from the historical responses by readers, the reading expectations considered in this project are not the same as anachronistic "interpretive conventions" levied against the texts of the hoaxes by expert groups of literary critics. While it is perhaps bold to claim a grass-roots

ethos for this project, its design is bottom-up, its focus specific, and its claims historically contingent.

5.1 Rhetorical precedents for the recovery of reader expectations

It is now necessary to develop a vocabulary for talking about readers' expectations of genre and culture. A combination of reader-oriented, rhetorical, and New Historicist methodologies lay the groundwork for this project and help recuperate reader expectations from archived reader responses. After these expectations have been reconstructed, textual pragmatics methods, like Ellen Schauber and Ellen Spolsky's "preference rules" and Optimality Theory, a constraint-satisfaction framework borrowed from linguistics, will help model the interaction of the expectations in decisions about the truth or falsehood of hoaxes.

To avoid the limitations of previous analyses of hoaxes that have restricted their inquiry to the rhetoric of the physical texts, I need methodologies that allow me to inspect the reception of the hoaxes, which is where their effect truly lies. While physical texts always form an important source of evidence for their historical impact, as Dwight Atkinson argues in his study of the transactions of the Royal Society, current conceptions of textuality informed by New Historicism encompass reception, including elements of readers' daily economic, social, and moral lives. Richard Altick argued in his seminal study of the English common reader that we cannot understand the historical impact of texts unless we understand these mundane details affecting reading behavior. Unless we enrich our definition of textuality, we will remain unable to explain historical acts of reading.

In addition to the historical details of antebellum readers lives outlined in the sections treating the *kairos* of the hoaxes above, there is another crucial source of evidence for the reception of the hoaxes—immediate reader responses and the common assumptions about reading science that they encode. When nineteenth-century readers debated the truth of the science hoaxes, they focused on certain *topoi* or "sticking points"—like the chances of the newspapers actually being able to get the information so quickly, the reputation of the scientists named in the article, or the "verisimilar" tone of the article. These *topoi* all index key expectations readers had about science and science news. There are good precedents for the recovery of these sorts of *topoi* in recent scholarship on the historical reception of science rhetoric and of American civic rhetoric.

In Rhetorical Power Steven Mailloux retains some of the assumptions of the reader-response school—namely Iser's and Fish's claim that the text is an event of interpretation, not an object—while defining a new "rhetorical hermeneutics" that connects historical readings of a text with the wider cultural debates they participate in. Mailloux develops the three critical moves of rhetorical hermeneutics through an analysis of the critical history of Huckleberry Finn. First, Mailloux brings the rhetoric of race in the novel into conversation with a particular sociocultural debate at the time of its publication—the "Negro issue" and, in particular, the representation of black people in the minstrel shows of the 1880s. Second, he discusses the critical history of the book from the 1880s to 1980 with respect to a particular cultural *topos*—the "bad boy" or juvenile delinquent. Finally, Mailloux puts his own interpretation of the novel into play

with other critical perspectives on the book, reader-response approaches in particular. With these three moves, Mailloux hopes to maintain the reader-response tradition's emphasis on the cognitive process of reading while bringing that tradition into contact with the culture of the text's production. His definition of rhetoric, in fact, is a definition of contact: "the political effectivity of trope and argument in culture" (Mailloux xii)

Rosa Eberly has extended and revised Mailloux's operational definition of rhetoric in her study of arguments about censored texts in Citizen Critics. Eberly sets out the goals of her project as follows: "the processes through which literary texts affect social practices can be studied empirically by analyzing the contours of public debate as reflected in the rhetorical strategies of participants' discourses" (Eberly 163). Like Mailloux, Eberly is interested in what happens when rhetoric encounters society—in the form of groups of citizens debating each of four censored texts. Eberly measures this debate through immediate reader response—Op/Ed pieces, letters to the editor, reviews, commentary in the media. She further structures the process of reception by identifying key *topoi* or stances from which citizen critics commonly launched their arguments about the controversial works, topics like obscenity, aesthetics, and authority.

Michael Schudson's The Good Citizen is another model of a historical rhetorical study that reconstructs changing conceptions of citizenship in America from the colonial period to the present day. Schudson reads the *topos* of the "good citizen" through its historical permutations in constitutional law, voting statutes, and political debate about voting. His study, like those reviewed above,

uses multiple historical sources in order to identify emergent cultural *topoi* that are powerful organizers of discourse at those historical moments.

Similar methods for reconstruction of key concepts in the public discourse of science have recently been employed in New Historical approaches to the rhetoric of science. In addition to integration of thermodynamic concepts into Victorian culture by Greg Myers discussed earlier, Charles Bazerman's recent study of Edison's rhetoric and Dwight Atkinson's longitudinal study of the rhetoric of the Royal Society also provide excellent models for this project. In The Languages of Edison's Light, Bazerman considers a wealth of historical data in tracing the cultural history of a "technology on its way to successful integration" (339). Bazerman studies a rhetorical maze of patent records, newspaper articles about Edison's research, industry prospectuses, and advertisements in order to tease out the strands of argumentation that are key in the arduous process of accommodating a technology—not just the idea of its usefulness, but the idea of the technology as an avatar of public desire—in the American mind. Writes Bazerman of his methodology:

> By focusing attention on situated, symbolic, discursive practices, the approach presented here moves us closer to the kind of micro-empirical study that is associated with ethnomethodology, conversational analysis, and sociolinguistics, allowing us to locate and examine the exact sites of social production and reproduction in particular discursive moments. (344)

Dwight Atkinson also applies this close attention to language in his study of the changing rhetoric of the Royal Society. Atkinson adapts Douglas Biber's register analysis methodology from applied linguistics to the project of illuminating changes in the rhetoric of the experimental report over 400 years; he combines that empirical approach with close New Historical analysis of the social issues indexed in the articles to situate the register changes in the article within the concerns of its writers and readers as participators in an ever-changing British political ecology. Methodologies like Atkinson's and Bazerman's, and the civic rhetorical projects as well, count on being able to "read off" key values of the reading culture from the archived texts under examination (Atkinson 59). These values are compared with outside historical accounts of the cultures in question before any claims are made about what those cultures believed. This methodology will prove useful for "reading off" reader expectations about science and science media from the texts of the initial reactions to the hoaxes in this study.

5.2 Pragmatic-linguistic models of reader expectations

Increasingly, rhetorical scholars of both civic and scientific discourse—as observable especially in Bazerman's and Atkinson's methodologies—are recognizing the utility for their research of pragmatic-linguistic methodologies that emphasize the social activities in which language is engaged. Scholars in pragmatics, the study of language in use, have talked about discourse in terms of expectations and goals on the part of its participants for nearly a century. Mikhail Bakhtin, in the process of criticizing the asocial tendencies of the Russian

Formalists, introduced a theory that grounded discussions of literary meaning in the communal values and speech practices of the reading community. John Searle and J.L. Austin both claimed in their versions of speech act theory that meaning in dialogue did not result from the actual linguistic form of the exchange, but from the interaction of this message with the preconceptions and desires of the participants. While they were not strictly interested in literary texts, their work was quickly adapted to those ends by Deconstructionists like Jacques Derrida.

H. Paul Grice's work extended Searle's and Austin's by bringing the pre-existing expectations of discourse participants to the very forefront of the interpretive process. Grice posited the Cooperativity Principle as a basic but powerful way of understanding human communication; it says, in effect, that participants in a discourse should assume that each is trying to help the other accomplish his/her goals. This principle breaks down into more specific guidelines, or maxims, which may be violated for certain effects. Maxims govern both the activity of the speaker and the hearer:

- Maxim of Quality: Tell the truth
- Maxim of Quantity: Be as informative as expected.
- Maxim of Relevance: Make your contribution relevant to what has come before.
- Maxim of Manner: Be brief, orderly, and clear.

The maxims are usually adhered to in "normal" communication, including textual communication, but they can be departed from in significant ways. *Flouting* is consensual departure; *violation* is unilateral departure. To take the

example of the maxim of Quality (telling the truth), a flouting of the maxim would be sarcasm, as in the following exchange:

A: What did you think of the statistics lecture?

B: Riveting.

B does not think statistics is riveting, and she likely accompanies her response with a particular, flat intonation to help clue A in to the fact that she is *flouting* Quality, and he should understand her response ironically. Compare this coordinated activity with lying, which is a *violation* of Quality. When B lies to A, she gives no indication that she is not upholding Quality, and so A is deceived.

The Gricean maxims and especially the notion of flouting have proved powerful and suggestive as research tools. They help structure speech acts like sarcasm and irony as well as explain the effects of indirect speech acts. Several theories of discourse interpretation have been based upon them. One of these is Dan Sperber and Deirdre Wilson's Relevance Theory, which models the interpretive process as an interpretive game driven by Gricean expectations that may come into tension with each other and therefore need to be ranked in some sort of (provisional and shifting) order during the reading process so that the reader can produce momentarily stable meanings from the text while she reads. The basic engine of Sperber and Wilson's interpretive model is a tension between the constraints of interpretive effort and effect. In other words, the meaning a reader chooses to favor in a particular reading will be the one that satisfies the most of her expectations with the least amount of effort. However, since Sperber and Wilson are not designing a reading theory *per se*, they make no provision for

a reader focusing on some textual elements over others; there is only one level, the "stimulus," which the speaker/writer has manifested already before the interpretive act begins. Within the stimulus, there are no levels to the notion of relevance, and levels are crucial because the reader's multiple textual and extra-textual expectations interact and compete with each other in the reading process; all these myriad expectations cannot be equally important to the reader.

Given that the reading experience for an individual can be driven by expectations based on the reader's dialect community, gender, prior exposure to text types, critical community, or lack of sleep the night before, a complete list of expectations for any single act, much less the acts of a reading community over time, are impossible. Jacqueline Henkel (lecture notes) tells the story of her revelation that the movie Casablanca was all about back pain after she watched it while recuperating from a thrown-out back. Scenes which she had once interpreted as significant in building toward Ilsa's climactic decision to leave Rick for Victor, she now interpreted purely as wrenching exercises in standing up from piano benches and leaning over bars. Henkel used her experience as an example of idiosyncratic interpretive expectations that must be discounted in any serious theory of reading expectations, but her story raises the same question Mailloux raises in Rhetorical Power—where to draw the line in any theory that treats reading as a constraint-satisfaction process.

5.3 Pragmatic models of readers' expectations of genre

Some productive attempts to limit research into pragmatic conventions have focused on particular conventions—generic conventions being the most

popular. These studies focus on generic cues within texts that trigger expectations based on readers' past experience with these genres. Rolf Zwaan has demonstrated that merely redirecting readers' assumptions about what genre a single text belongs to—news or literature in his case—triggers differing reading behaviors for that text.[5]

The most productive attempt to combine rule-based pragmatic approaches to discourse interpretation with reader-oriented criticism is Ellen Schauber and Ellen Spolsky's Bounds of Interpretation. Schauber and Spolsky identify three systems of conventions which constrain the literary reading process: linguistic conventions, pragmatic conventions, and literary conventions. They focus on literary conventions in the form of generic formulas (specifically for the romance). In Schauber and Spolsky's model, reader expectations are termed "preference rules," which are active in any one reading of a text. A reader starts a novel with just the title and any preference rules mentally associated with the genre of romance novels and with the author's known style, if applicable. These preference rules include *necessary conditions* for membership in a genre (listed in detail for romance novels), *gradient necessary conditions* which can still hold even though some parts are left unsatisfied, and *typicality conditions*, the weakest, which can be overridden based on conflicting information from the text being read. In addition to these preference rules, the reader brings to the text "conditions of significance" which filter out aspects of the text unimportant to the reader, and which can interact with typicality conditions as the reader chooses to

[5] See Chapter Three for a fuller analysis of Zwaan's study.

emphasize (or to ignore) typical features of the text. Interpretations are constructed as follows:

1. Readers begin with a certain, weighted list of conditions; as these conditions are supported or disconfirmed during reading, the reader prefers some interpretive possibilities over others.
2. In cases of conflict between conditions—say, in "A Modest Proposal" when the reader realizes that the Sincerity Condition (roughly, that the narrator must believe what s/he is saying) comes into conflict with the horrifying details of the proposal—the reader reweights the conditions. In an ironic reading of "A Modest Proposal," the Sincerity Condition is weighted less heavily than it was at the beginning of the reading. But, as Schauber and Spolsky point out, "overriding is not canceling or suspending; tension is the price paid for whatever resolution is achieved" (34). The Sincerity Condition does not disappear, it is just downgraded in significance to the reader—and could be upgraded again later in light of more data.
3. In a case of a conflict between two conditions that is ultimately unresolvable through re-weighting of conditions, ambiguity results. The reader may hold two or more readings as equal. Schauber and Spolsky go through Wuthering Heights with their constraint-satisfaction process to account for its generic ambiguity between a romance and a tragedy, and they go on to interpret how this ambiguity is significant for that juncture in literary and social history in England.

As a model of reader expectations that could potentially be applied to analyzing the effects of hoaxes on their readers, Schauber and Spolsky's model has many desirable features. It admits more types of expectations than just high-level critical conventions. Also, it can cope with the differing strengths readers might assign to these expectations during the reading process. However, a model of reading that can cope with readers' decisions about truth while reading the hoaxes needs to detail more than just generic expectations, because conceptions of "truth" extend beyond genre to the world of the reader's prior experience with science. Unfortunately, Schauber and Spolsky's model does not provide a mechanism for these differing expectations about genre and the "world" to interact with each other. I have resources for recovering the reader expectations from historical documents, as outlined in the previous section. What I need now is a method for holding these multiple expectations in view and modeling their interaction and competition with each other in the process of reading a hoax.

5.4 Optimality Theory

Over the last three years, I have been developing a model of reader expectations that may be applied more productively to explaining the effect of the hoaxes' rhetoric on their readers. It is based on Optimality Theory, a constraint-satisfaction framework that models decision processes based on interacting constraints of various strengths. I first applied the model to a project on re-reading in a Jorge Luis Borges short story. In it I demonstrated how specific competitions between expectations—about the reliability of the narrator, for example—can drive a single reader's re-readings of a text. I will give the results

of that experiment as examples of my adaptations of Optimality Theory after a brief description of the theory, its origins and current uses, and how I have adapted it to model the reading process.

Optimality Theory (OT) is not actually a theory. It is a model for constraint satisfaction processes in general (like workflow and decision problems, some cognitive processes, and biological processes like adaptation). Prince and Smolensky brought Optimality Theory from economics into linguistics in 1993, where it proved useful for handling complex phonological problems previously inexplicable or oversimplified by generative grammar. To see how it works in phonology, consider Table 1:

Table 1: Syllabification of "onset" /ansɛt/

	FAITH	ONS	NOCODA
✓ an-sɛt		*	**
Ans-ɛt		*	*!**
<a>nsɛt	*!		*

The first column lists all (or the most realistic, in most cases) possible candidates for the phonological form of a word as speakers actually pronounce it—in this case, the three most probable syllabifications of the English word "onset." A hyphen indicates the syllable break in the word. The bracketed <a> in the third candidate represents a deleted vowel (which is actually a fairly common phonological feature in colloquial English: think of the nasal "N-n" with a head shake in place of "no, no").

The top row lists all phonological constraints applicable to the problem in order, left-to-right, from strongest (inviolable) to weakest (often violated in

practice). In this case, the constraint FAITH, which states that all parts of a word should be pronounced, is ranked higher than both ONS, which says syllables should start with consonants, and NOCODA, which says syllables should not end in consonants. ONS and NOCODA are not ranked with respect to each other because they never operate on the same part of the syllable and therefore never compete with each other; the vertical dotted line signifies this lack of competition. The ranking of the constraints in this tableau could also be notated in a linear form as FAITH >> {ONS, NOCODA}, where ">>" signifies domination and where bracketing with commas signifies equality of rank and therefore lack of competition. This ranking applies to all English words and was determined via analysis of copious sets of English syllabification data by phonologists.

The asterisks in the matrix of the table represent violations of particular constraints. The violations add up like penalty points against a candidate, with a violation of a stronger (leftward) constraint counting more than a violation of a weaker one. An "!" follows and indicates the fatal violation, the one that knocks the candidate out of the running for optimal form (violations are usually tallied up from right to left, weakest to strongest). The check mark in the candidate column indicates the optimal phonological form, the one that satisfies the greatest number of highest-ranked constraints. This is the form in which speakers actually pronounce the word "onset."

In the example in Table 1, "an-sɛt" is the optimal form. While it has more total violations than "<a>nsɛt," it nevertheless satisfies FAITH, the highest ranked constraint. The runner-up, "<a>nsɛt", does not. The third form, "ans-ɛt", gets

knocked out of the running even earlier because it accrues more NOCODA violations than either of the other two forms due to a consonant cluster "ns" at the end of the first syllable.

How are phonological constraints derived in Optimality Theory? The constraints and their ranking were derived from looking at phonological paradigms. Paradigms are microcosms of a language: they are data sets listing all differing forms currently in use in the language for plural endings, syllable breaking patterns or whichever phonological phenomenon is under investigation. Looking at these paradigms, phonologists make general claims based on the patterns they see: "This language never has closed syllables"; "in about half the forms here, consonant reduction occurs when the plural ending is added," etc. These generalities become constraints on the actual spoken forms of words in the language because the forms that speakers actually use are the ones that satisfy the greatest number of these "rules." The total set of phonological constraints, claim phonologists, is universal; only their ranking changes from language to language. In Minyanka, a Niger-Congo language, there are never consonant clusters; this is an extremely high-ranked constraint. In English, on the other hand, that constraint is very low-ranked, as evidenced by five of the words in this sentence. Once phonologists determine which of these universal constraints are important for syllabification, plurals, and so on, in a particular language, their ranking is determined by working backward from the paradigms again. Examining the forms speakers actually use, the "optimal" forms, allows you to deduce which of your constraints are the most dominant, which are middle-ranked (coming into

play only to decide between two forms that both satisfy a more dominant constraint), and which are very weak (only "winning out" and appearing in actual speech in the absence of any competition with stronger constraints).

Optimality Theory (OT) has worked spectacularly well in phonology, perhaps because phonological rules are a relatively circumscribed set, as there is a finite number of perturbations the human vocal tract can perform on sounds when they are combined with other sounds in words. OT is now being applied to syntax with a more limited degree of success, as the universality of syntactic rules is still actively debated. For one compilation of views, see Barbossa, *et. al*. Is The Best Good Enough? Optimality and Competition in Syntax. A few studies have even applied OT to pragmatics, using Gricean rules for interaction, though these innovations are recent and relatively speculative. Bruce Hall's "Grice, Discourse Representation, and Optimal Intonation" is an example of this new work.

Using Optimality Theory to help organize and model the interaction of reader expectations is a productive addition to expectation-based models of the reading process. OT's "constraints" are actually very similar to Schauber & Spolsky's preference rules; OT just adds the benefits of a graphic model, which is easier to inspect visually and which allows both interaction between many different kinds of expectations and a greater degree of precision in the ranking and re-ranking of those expectations.

5.41 OT and reading an unreliable narrator

As an example of how OT can help explain reading expectations at the level of genre, specifically, expectations about the reliability of the narrator of a

short story, consider Wayne Booth's "reliable narrator" rule. The reliable narrator rule can be seen as an expectation or constraint with two parts: one, that the narrator will provide the reader with all data relevant to understanding the progress of the story; two, that the narrator's evaluation of that data will be truthful and helpful (Booth 67). These sound, in fact, a great deal like Grice's maxims of relevance, quality, and quantity. As with Grice's maxims, Booth's principles are default expectations and may be violated in order to produce various effects in stories. Consider how an OT-type approach can be applied to the activity of re-reading in "The Garden of the Forking Paths" by Jorge Luis Borges. This analysis refers to my own experience reading the story.

The story is narrated by Yu Tsun, a Nazi spy. Here the constraints of my personal values interact with Booth's constraints on reliable narration; I cannot trust a Nazi spy. There is no textual reason to think Tsun would lie to me simply because he is a Nazi sympathizer, but nevertheless, my negative judgment about his political ethics infects his narrative ethics. While at the beginning of the story, I cannot locate Tsun's unreliability specifically in his presentation of ir/relevant information or in his mis/evaluation of that information (the two parts of Booth's "Reliable Narrator" constraint along with their negative or "unreliable" valences), my reading does reveal the exact disjunct of my interpretive experience from Tsun's. Suspicious, I re-read everything he tells me over his shoulder, so to speak.

Tsun takes a desperate train ride into the country, closely pursued by a British Inspector, to find the one man who can help him communicate the location

of a British airstrip to Hitler's forces in Berlin. At the train stop he thinks is his, he asks some children on the platform if he is at Ashgrove, and they tell him yes. After he gets down from the train, the following scene ensues:

> A lamp lit the platform, but the children's faces remained in a shadow. One of them asked me: "Are you going to Dr. Stephen Albert's house?" Without waiting for my answer, another said: "The house is a good distance away but you won't get lost if you take the road to the left and bear to the left at every crossroad." I threw them a coin (my last), went down some stone steps and started along a deserted road. (93)

Children with shadowy faces who seem to know exactly what a complete stranger is looking for—this seems dangerous to me. Why else would Tsun have mentioned it, unless it were relevant, unless it were going to come back to haunt him later in the story? After all, I know my detective fiction. However, Tsun clearly evaluates the children as harmless and moves on without comment. In my newfound distrust of Tsun, I re-evaluate the scene he has just presented me and decide the children *are* a threat to Tsun, as depicted in Table 2.

Table 2: Decision about Tsun's narration of children

	Relevant Info	Reliable eval
✓children a threat to Tsun		*
children not a threat	*!	

My decision shows me just what my problem with Tsun as an unreliable narrator is. Before, the two criteria, that a narrator must provide reliable access to relevant information and should reliably guide my evaluation of that information, were not ranked with respect to each other because they had not yet competed

with each other in my reading experience. Now, however, they do compete, and my chosen interpretation of the scene with the children reveals that I rank relevance higher than evaluation in deciding whether or not to trust my narrator; the solid vertical line between the constraints indicates this crucial ranking. If I believed Tsun's assessment that the children were irrelevant to his mission in the long run, then I would have to admit he evaluated them reliably. But that would mean he took up my attention with totally irrelevant characters at a pivotal juncture in the story, and I cannot accept that in my current nervous state, wondering what Tsun's fate will be at the very climax of the story. Tsun has *violated* the Gricean maxim of Relevance, leaving me no clues that would help me infer an ironic meaning from his irrelevant attention to the shadowy children; they thus loom in the background, unresolved and unrelated to any other action in the story. So, I choose to believe, against Tsun, that the children are relevant, that Tsun has not evaluated their threat correctly, and I read on waiting for them to reappear from a dark alley at a crucial moment.

They do not. The story ends with no further reference to the children and no evidence of any effect they might have had on the outcome. If I had not done this exercise in examining the interaction of my expectations about Tsun's reliability, I would have remained unaware of a key element of my experience of Borges's story-telling. The children are not the only detail in Borges's story that seems to lead nowhere, that proves irrelevant to anticipating and understanding Tsun's mission. But the story is, in the end, about a *maze*, the "Garden of the Forking Paths." The irrelevancies in the narration I encountered are like wrong

turns I took in the maze, leading to dead ends. These "wrong turns" create a powerful atmosphere of disorientation, frustration, and foreboding that could not be constructed another way. This exercise illustrates just one way in which an OT-type analysis can help explicate blockages or re-interpretations in the reading process and help the relative strengths of interpretive expectations to emerge at the same time.

5.42 Strengths and weaknesses of OT

This interpretive decision about the reliability of a narrator is a very small move in the incredibly complex activity of reading. Taken together, all the reading expectations in play at any moment of reading (pragmatic, textual, personal, sociolinguistic, generic, etc.) describe the reader's current set toward or "filter" on meanings arising from the text. This is the most promising aspect of OT as applied to reading the hoaxes—the potential to recover from the immediate reader response to the hoaxes a ranked "filter" of expectations that both structures the individual reading process and provides a set of common reading expectations at the time.

A few caveats are in order with respect to the adaptation of OT to reading hoaxes. First, OT provides a descriptive model of hoax reading rather than a prescriptive or predictive one. The purpose of the model is to describe as completely as possible all of the expectations readers held in common when they tried to decide about the truth-value of a hoax. The model is testable, of course, against the final decisions readers made. If the model fails to locate the "deciding factors" in their reading processes, to reflect all of the interpretive conflicts

apparent in the archived responses, then it must be edited until an explanatory description is achieved. But the model itself does not predict if a particular hoax will or will not be successful. The reason for this is that the expectations that form the engine of the model are expectations about science news, not hoaxes. As an indirect project, one could apply the model to a particular hoax to see if it satisfied readers' top expectations of a good science news story, but this would be a shaky prediction excluding key and uncontrollable factors in a hoax's success such as its serendipitous timing with other similar stories in the news or with the political climate at the time of the hoax's publication. OT works with historical judgments to open up the process of hoaxing for close examination. The conclusions that can be drawn from it pertain to the top-ranked reader expectations of science and why hoaxers chose to ridicule readers for these priorities.

A second caveat follows from the historicity of the project. In the reading of the Borges story, I had access to my own moment-by-moment interpretations during the reading process. The reader responses to the nineteenth-century hoaxes, on the other hand, are mostly *post hoc* evaluations of the hoaxes' truth or falsehood. So, while OT is capable of modeling the reading process online, as demonstrated above, the interpretive decisions modeled in this project will be after-the-fact evaluations, due to constraints in the historical data.

A third point about the mismatch of OT and reading the hoaxes—OT as it is used in phonology assumes the universality of its constraints. As we have seen from the levels involved in reading, however, few if any can be universal. Yet,

some reading constraints are shared by reading communities with some common reading experience behind them, similar to Fish's "interpretive communities." While it is tempting to say that some reading expectations, especially the lower-level linguistic and pragmatic expectations, likely hold up in an even broader arena, between communities, that is a problem for future applications of OT to literary reading. The present project will focus quite specifically on reader expectations of the genre of popular science news and of ethnoscience.

5.5 Summary of methodology

A methodology combining rhetorical techniques for reconstructing the expectations of historical readers with an OT-type framework for modeling the interactions of those expectations will enable this project in several specific ways. First, it will help me achieve my goal of treating in a detailed and rigorous fashion the question of how exactly the authors of the hoaxes manipulated reader expectations to fool their readers. It will help me account for the rhetorical effect of the hoaxes in terms of readers transforming (and being transformed by) their expectations of science and science news. Hopefully, modeling these transformations will also allow me to make a principled contribution to the discussion of scientific genres by detailing the specific rhetorical moves an author makes when engaging readers in a hoax. Most importantly, my methodology will help me recuperate from the historical data of contemporary reader responses a set of core expectations that 19th century readers may have put into play as they read scientific media hoaxes.

6. SUMMARY OF CHAPTERS

In this chapter I have outlined desiderata for a new rhetorical definition of a hoax as a rhetorical event, rather than a text. I have established an exigence for studying nineteenth-century scientific media hoaxes because they speak directly to current historical and methodological problems in rhetoric of science and reader-oriented criticism of nineteenth-century literature. I have also detailed the expectation-based methodology to be used in answering questions of how the hoaxes fooled their readers and what kind of rhetorical activities the hoaxers were engaging their readers in.

In Chapter Two, "Poe's Hoaxing and the Construction of Readerships," I will put my methodology to the test in analyzing contemporary reactions to the hoaxes of Poe and his media rival Richard Adams Locke. I develop a preliminary "filter" of ranked expectations held by antebellum science newsreaders in 1835. A careful examination of the rhetorical process by which a hoax creates a double readership—dupes and *savants*—when matched with Poe's cosmology expressed in Eureka, reveals that Poe used hoaxes not just to demonstrate his superiority but also to materialize a community of like-minded *savants* who rejected the "illusion" of professional Baconian science in favor of an epistemology of imagination.

In Chapter Three, "Twain and the Social Mechanics of Laughter," close examination of reader responses to "The Petrified Man" (1862) and Twain's other non-scientific hoaxes leads to changes to the filter of reader expectations in order to reflect changes in newsreading culture since 1835. Twain's commentary on his

hoaxes offers new insights into the psychology of hoax reading—specifically the power of attention and of reader agendas in constructing belief or doubt. Twain's scientific hoaxing emerges as a special social mechanics engineered to produce laughter as an affirmation of self-determination—engineered, also, to demonstrate Twain's considerable authority over his readers. These findings encourage revision of traditional characterizations of science as an antisocial, mechanistically destructive theme in Twain's work.

Chapter Four, "The Hoaxes of Dan De Quille—Building and Defending the West," constitutes the first extensive rhetorical assessment of the hoaxes of miner and writer Dan De Quille (William Wright). De Quille's hoaxing is unique in that he embraces both science and the power of popular science writing, including hoaxes, to literally build worlds, to construct the state of Nevada and the idea of the West. Critical of Eastern commercial appropriations of Western resources, De Quille enthusiastically championed self-made scientists and engineers as the new folk heroes of the West.

In Chapter Five, "The Mechanics of Hoaxing," based on the hoaxers' preoccupation with machines, I propose the hoax as a rhetorical machine that transforms public assumptions about science into awareness that scientific truths are constructing a new reality for nineteenth-century Americans. Then, I suggest extensions of a rhetorical method based on reader expectations—including empirical studies of differences in composition strategies between experts and novices, and historical studies of gender in reading. In the Epilogue I analyze the Sokal hoax as yet another move in the construction of a tense relationship

between American arts and sciences in the media that began with the nineteenth-century scientific media hoaxes.

Chapter Two: Poe's Hoaxing and the Construction of Readerships

Edgar Allan Poe is the ideal figure with which to begin any study of scientific hoaxing in America. Scientifically educated beyond many of his peers and a pioneer in the development of at least two genres that foreground scientific epistemologies—science fiction and detective fiction—he embodies the tensions between the arts and sciences in the Jacksonian era. His hoaxes were public acts meant to call attention to these tensions, as they were written on science-related topics and carefully crafted and presented in popular news media for particular reading audiences. His later two hoaxes, "The Facts in the Case of M. Valdemar" (1845) and "Von Kempelen and His Discovery" (1849) dealt with the psychological sciences, what are now deemed "pseudosciences": mesmerism and alchemy. But his first two hoaxes, "Hans Phaall—A Tale" (1835) and "The Balloon-Hoax" (1844) built fantastically intricate flying machines whose structure encapsulated a striking argument about reality, an argument Poe also makes in Eureka: that we should "put faith in dreams as the only realities" (1). Poe asked with his technological hoaxes: What was truer, or more real—that something actually existed and worked in the world, or that it *could* exist and work? Or, as

Poe himself stated the case in his defense of his hoax "The Facts in the Case of M. Valdemar": "if the story was not true…it should have been" (Ljungquist 204).

Poe developed this argument about reality through his hoaxing practices and the peculiar relationships with reality and readership that hoaxing enjoins. He and Richard Adams Locke, through the competition of their moon hoaxes in the Eastern media in 1835, innovated the genre of the scientific media hoax in America. Both writers baited their hooks with a cluster of rhetorical lures that mimicked the popular science reports their readers were accustomed to encountering in almost every newspaper and magazine. Poe, particularly, was explicit about what he thought his readers expected from a science report; he discussed these reader expectations several times in different formats dating from the overshadowing of his first hoax by Locke's hoax. By intuiting and then re-performing his readers' expectations about how science was read, Poe managed to hoax a good percentage of his readers in at least two of his four attempts. He did this for several purposes: first, to demonstrate his creative authority over his readers even to the point of altering their realities; second, to criticize those readers for their admiration and funding of professional scientists instead of professional artists; thirdly, to reveal the vulnerability of purely inductive, Baconian science and thereby lay the groundwork for his own imaginative epistemology, outlined in Eureka; and fourth, to materialize a community of fellow geniuses sympathetic to Eureka's epistemology.

Because of his explicit attention to what makes a hoax work, Poe's hoaxing practices offer an ideal opportunity to test the methodology laid out in the

previous chapter—using contemporary reader responses to elicit and structure a "filter" of reading expectations that Poe's readers might have held in common when coming to his hoaxes. First, however, it is important to establish how Poe learned science and the conventions of writing it for a lay audience. After that, we will examine the competition between Poe's "Hans Phaall—A Tale" and Locke's "Moon Hoax" in the media and the various reactions to the hoaxes in order to glean readers' expectations of a "true" popular science report; as part of this project, we will also consider the rhetoric of the popular science article at the time as another source of conventions that readers came to expect. Using7 Optimality Theory, I will attempt to model how these expectations interacted and competed with each other in producing either belief or doubt in the moon hoaxes. Then, I will extend the method to examine the rest of Poe's hoaxes and, based on reader reactions to them, to make changes to the filter of antebellum reader expectations for science news. After a discussion of the ways in which a rhetorical methodology solves problems that have plagued Poe hoaxing scholarship—particularly problems with understanding his choice of hoaxing when constructing relationships with his public, I will conclude by connecting Poe's hoaxing to his scientific epistemology in Eureka and suggesting that both projects reveal Poe gesturing toward community.

1. OVERVIEW OF POE'S SCIENTIFIC AND RHETORICAL ACCULTURATION

This section considers how Poe came to know science as a cultural practice. According to Roland Barthes, who analyzed the "structuration" of a Poe hoax in depth, Poe internalized, through learning to read and write about science,

a "*cultural code*…the code of knowledge, or rather of human knowledge, public opinion, of culture as transmitted through books, education, and in a more general, more diffuse way, through all sociality" (Barthes 94). We will return to Barthes's particular structuring of this notion of code after examining the media through which Poe acclimated himself to scientific culture and its popular rhetoric.

Certainly, Poe's excellent primary education played a crucial role in the development of his scientific rhetoric—particularly in terms of how to cope with an audience. Under the aegis of his foster father, John Allan, Poe was educated in excellent private schools both in England and America. From the age of about seven to the age of 11, Poe studied French, Latin, history, and literature at the Manor House School in Stoke-Newington outside London (Quinn 71). When his family returned to the United States in 1820 after a business venture of Mr. Allan's fell through, Poe was enrolled in Joseph Clarke's private school in Richmond. He studied more classical languages here; from tuition bills and letters from Clarke, we know Poe was reading Horace's Odes and Cicero's De Officiis (and likely De Oratore) in Latin, and Homer in Greek. By the age of 16, Poe was fluent in French, dexterous in Latin, and triumphant in speech competitions with his classmates (Quinn 83-84). While reading Cicero and copying and "capping" Latin verses likely amounted to his only formal rhetorical training at this point, his studies undoubtedly acquainted him with the classical structure of arguments and techniques for persuading audiences. The sciences, even natural philosophy or theology, were not part of a traditional primary

education at this time. They were more advanced studies reserved for the university.

Poe entered the University of Virginia in 1826, and though he got himself kicked out for gambling by December of that year, he nonetheless distinguished himself in his course of modern and classical languages (Quinn 109). His library card reveals that he checked out many history texts in addition to works by Voltaire and Byron. Although Poe was not enrolled in any rhetoric classes and left behind no evidence of having checked out or bought any rhetoric texts, he was active in a debating society at the university, which indicates that his interest in argumentation, in engaging and persuading an audience to his point of view, had not waned (Quinn 104). Susan Booker Welsh in her dissertation Edgar Allan Poe and the Rhetoric of Science argues that George Campbell's Philosophy of Rhetoric was the primary rhetoric text in American colleges from 1800-1850, and that Poe must have read it. Although there is no direct evidence of this, Welsh cites as circumstantial evidence Poe's review of Leigh Hunt's Imagination and Fancy that is very Campbellian in tenor, overall, as it criticizes Hunt for his purely inductive model that excludes speculation, which Poe believed was the duty of literary philosophers as public truth-makers (Welsh 90, 111). Whatever his actual indebtedness to Campbell might be, Poe openly employed many of the principles of faculty psychology in Poe's Dupin tales and in his Philosophy of Composition (Welsh 231). And, famously, Poe touts the "faculty" of intuition and the imagination over syllogistic logic in Eureka (17). Rather more crucial for the purposes of explaining Poe's hoaxing practices is the possible Campbellian legacy

of a stochastic model of belief. Poe recognized that belief, for his readers, was not a matter of positive demonstration, but a matter of likelihood. This may explain his repeated emphasis, in his rhetorical analysis of Locke's "Moon-Hoax," on scientific detail as the most important factor in making a hoax seem probable, and therefore acceptable, to the reader.

Although Poe's formal education ended with his withdrawal from the University of Virginia, Poe still read widely, especially in science, which monopolized his reading and writing attentions even from this early period. He published Al Aaraaf, Tamerlane and Minor Poems in 1829, and the first poem in the collection was the "Sonnet—To Science." Traditionally viewed as an early expression of Poe's antipathy toward contemporary Baconian inductive science, there is resident in the poem, however, an inkling of the fascination with science—especially mathematics, astronomy, mechanics, cryptography, and psychology—that would dictate Poe's choice of topics for the rest of his writing career. In the sonnet Poe concludes that science has "torn from me/The summer dream beneath the tamarind tree" (Poe "Sonnet" 771-72). While this image amplifies the theme developed in the rest of the poem of the damage science has done to the arts, another meaning lies very close to the surface: Poe cannot leave science alone. It enthralls him, it disturbs his rest. One might anticipate from this very early sentiment what Poe indeed goes on to attempt in Eureka—a reconciliation between science and imagination, the two forces that lay claim to Poe's intellectual life.

Rather than continuing along this vein, however, and winding up psychoanalyzing Poe's predilections for science and technology, this project, due to its focus on conventions of reading popular science, requires instead an examination of the scientific climate in which Poe read and wrote in the 1830s and 1840s. In Barthes's words once more, we will now survey for antebellum American science "the code of knowledge, or rather of human knowledge, public opinion, of culture as transmitted…in a more general, more diffuse way, through all sociality."

1.1 Science in antebellum America

In Chapter One we discussed the most general cultural forces affecting scientific culture in the Jacksonian period. Principal among these was a feedback loop of desire between professionalizing scientists and the lay public, driven by both an urgent desire for new technologies and an equally urgent need for funding and public support. When considering Poe's scientific acculturation, however, we must focus more closely on the lacunae that were developing between professional and lay readers and between professional scientific and artistic communities. As Judith Yaross Lee put the situation in her case study of the "Fossil Feud" between paleontologists Edward Drinker Cope and Othniel Marsh later in the century, "the role of the lay public in nineteenth-century science shifted from participant to spectator" (Lee "Fossil" 3). The public was constantly hungry for news of what was going on behind closed study doors and on distant expeditions. Poe's hoaxes addressed the lack of public scientific information and the widening divide between the professional conditions of scientists and artists,

and they did this by exploiting "bridging" institutions that were already trying to redress these imbalances: specifically, technology—especially as commodified in advertisements in the popular press, "scientific" spectacles like those in Barnum's American Museum, mesmerism and other "pseudosciences," and scientific treatises and articles written for general audiences.

The popular media did its best to satisfy its readers' desires for science. Newspapers were filled with bombastic announcements of scientific triumphs: "The Annihilation of Space!" gushed the 4 June 1844 New York Herald over Morse's invention of the telegraph. Significantly, the papers were also packed with advertisements trumpeting the latest in pills, galvanic rings, lamps, and even hydraulics that, for installments of mere pennies, could revolutionize the subscriber's lifestyle. Via the technology market, science was sold, and thus reconciled, to the lay public as a commodity.

This mercenary connection between science, publics, and art made spectacle as much a part of science during this period as research was. Swiss naturalist Louis Agassiz attracted much of his funding through his impressive collections of exotic stuffed species of animals from all over the world, and he was not the only scientist to walk wide-eyed prospective investors down aisles of stuffed peacocks and tortoises (Miller "Political" 102). It is little wonder, then, that P.T. Barnum's collection of freaks of nature in his American Museum in Boston could flourish during the middle of the century and, yet, still be counted "scientific" by a distinguished natural scientist like Spencer Baird, himself a veteran peacock-stuffer (Betts 357). Clearly, not only technology, but also

experimental science, were fully on the American market in the 1830s and 1840s and were considered entertainment as well as a commodity.

This conflation of science and spectacle also created a space for play in the public sector for what are now considered pseudosciences, but what were then becoming known as "social sciences": magnetism (mesmerism) and phrenology in particular. The public life of mesmerism is of the greatest interest to us, since Poe used it as the topic of his hoax, "The Facts in the Case of M. Valdemar." A more detailed discussion of Poe's education in this field appears in the analysis of that hoax in section five of this chapter. However, a few comments are pertinent here. One important observation, given our anachronistic perspective, was that mesmerism was one of the best-reputed of the "pseudosciences" because the hypnotic trance was a real phenomenon and mesmerists' claims about the myriad effects of the body's magnetic fields were unfalsifiable at that time in medical history; also, mesmerism had no serious competitors in terms of explanatory theories of the subconscious. Consequently, the *American Journal of Science*, Benjamin Silliman's well-respected Yale general science journal regularly featured articles on mesmerism along with more standard reports of discoveries in chemistry, geology, and physics.

Mesmerism, like medicine during this time, was a science with many lay practitioners. Therefore, it helped create a sense of continuity between American public life and the increasingly rarified communities of science. In addition to this liaison mesmerism built between the more elite scientific communities and the lay public, it forged a second connection between American science and daily

American life. Pseudosciences like mesmerism earned a great deal of their credibility via their humanitarian aims. Their practitioners preached them as efficacious for the improvement of human relations and living conditions, matters of real concern to antebellum Americans confronted daily with the social problems of slavery and of industrialization, with its attending abuse of women and immigrants. Allying itself with the other budding "social sciences" of psychology, feminism, and sociology, mesmerism aimed at social reform (Stoehr 27). It applied scientific principles to the prediction of behavior; it offered an illusion of some kind of control over the bewildering array of motivations and styles of personal interaction that were coming into contact (and conflict) with each other during the population explosion of the Jacksonian era. With this innate appeal of social control working to its advantage, mesmerism and "other equally delicious ism[s]," as Poe deemed them while lampooning their proliferation in Eureka (44), constituted a serious attempt at reconciling the explanatory power of the increasingly Brahministic academic sciences with the social concerns of the average working American. Acknowledging the bridging function of practices like mesmerism is vital to understanding Poe's hoaxing. Ever a lover of the liminal, Poe recognized the power of the "isms" to tap into the sympathies of his readers; thus, he chose mesmerism and alchemy as engines ideally suited to driving home the effect of his last two hoaxes, "The Facts in the Case of M. Valdemar," and "Von Kempelen and His Discovery."

Poe also availed himself of the last "bridge" to appear between popular and elite scientific culture—the rapidly increasing number of pages in the literary

weeklies and monthlies (and, beginning in 1835, the penny press) devoted to science and technology news. The innovation of the penny press merits deeper discussion in the following section with respect to Locke's "Moon Hoax," but Poe's other periodical science reading can be surveyed briefly here. Poe clearly read Silliman's Journal, but he also demonstrated familiarity with the science news in the Home Journal and Evert Duykinck's Literary World, both magazines meant for the general reader (Poe "Von Kempelen" 608). Special "general knowledge" magazines had even developed during Poe's lifetime for instructional use in the home. The Family Magazine, founded in 1833, published articles on the geology of earthquakes and volcanoes next to poetry for the family to read together. Editors clearly recognized that the public thirst for science in the media could not longer be satisfied by the rapidly specializing scientific communities, and so a popular genre of "science writing" gradually developed, with some papers and magazines actually beginning to retain a science writer on staff. According to Carolyn D. Hay's study of the founding of the National Association of Science Writers, antebellum newspapers covered a range of scientific topics mirrored by the advertisements mentioned earlier: "medicine, agriculture, inventions and technology, pure science, exploration, aviation…," with technology receiving by far the most press (Hay 5,9).

Scientists themselves realized the popular press was stepping in where they had stepped out, and some were troubled by the resulting misinformation of the public. Joseph Henry complained to a friend, "In this country, our newspapers are filled with the puffs of quackery and every man who can burn phosphorous in

oxygen and exhibit a few experiments to a class of young ladies is called a man of science" (Bruce 72). But even if they felt some responsibility for the "quackery" running rampant in the papers, few scientists were willing to write for the public on a regular basis (Bruce 118). It required time they simply did not feel they had. A few scientists perhaps even enjoyed treading the fine line that separated scientific fact from fantasy in the public gaze. It is a persistent rumor, for instance, that French astronomer Jean-Nicolas Nicollet helped Richard Adams Locke craft the details of his "Moon Hoax" in 1835. After the Civil War, Dr. William Osler, Professor of Medicine at Johns Hopkins, entertained himself by sending hoax medical reports, usually sexual in tenor, to prestigious medical journals through his alter ego Dr. Egerton Yorrick Davis (Boese). Though hoaxes by scientists in this century are rare, the Sokal Hoax, which will be treated in the last chapter of this dissertation, is a notable exception.

This brief survey of the scientific life of America in the Jacksonian period leaves us with the sense that even if Poe had restricted his scientific curiosity as a reader entirely to the popular press and the court of "public opinion" as Barthes would term it—Lyceum science lectures, advertisements and news about mesmerism and other scientific wonders, and the daily innovations in transportation and communication—he would have had an impressive scientific education. However, Poe further sought out and eagerly devoured the writings of European scientists in American reprint. Especially interesting, both for the purposes of considering his hoaxes and for appreciating the breadth of Poe's scientific curiosity, are Poe's readings of the works of astronomer Sir John

Herschel and chemist Sir Humphrey Davy, the journals of the balloonist Monck Mason, the mathematics of Pierre Laplace, and the travel narratives and cosmology of Alexander Humboldt. Poe also consulted older works by Kepler, Newton, and Bacon in writing Eureka. And, he armed himself with the natural philosophy of the German and English Romantic schools, including Kant and Byron and, most powerfully, the rhetoric of Coleridge in the Biographia Literaria, which figured centrally in Poe's Philosophy of Composition and the Rationale of Verse (Hoffman 86-87). From these last works he inherited the war between science and art that he would struggle to mediate throughout his literary career, beginning with "A Sonnet—To Science," intensifying in the writing of his hoaxes, and culminating in Eureka.

The influences of these scientific and technological authors and others will be examined more closely as each of Poe's hoaxes is considered in turn. But even a sampling impresses the reader with the resources available to someone like Poe, who had a good education, a small amount of money, and wished to learn about science in the 1830s and 1840s. However, neither money, nor breeding, nor education guaranteed a working knowledge of the most basic of scientific principles, or so lamented an essay by C.L. Barritt in the 22 February 1845 edition of the Poe-edited Broadway Journal entitled "Why Are Not the Sciences Better Understood?" Barritt complains in his essay that the cultured "young gentlemen" of the day did not even know "why they are warmer in a woolen blanket than in a cotton one of equal weight…or why a white hat is cooler than a black one" (115). He lays some of the blame for this regrettable state of scientific ignorance on the

American primary education system; however, Barritt more squarely indicts the characters of these gentlemen, namely their laziness and fondness for the opera, fashion, and the romance novel over a little serious reading that would be "of more credit of the person, than being able to correct a false step at a cotillion" (116).[6] Poe had certainly had an upper-class acculturation through John Allan's family. But whether because of that upbringing or in spite of it—since after he lost the post John Allan got for him at West Point, he had almost nothing further to do with the Allans—Poe seemed to take his own science education very seriously. As evidenced by his reading and, in his early writing, by the copious scientific details of observation and navigation weighing down even such an un-scientific story as "MS Found in a Bottle," Poe was committed to the weird hybridization required in the writing of science between text on the one hand, and the anti-textuality of immediate sensory perception and measurement on the other. Indeed, if "MS Found in a Bottle" does not in fact begin autobiographically, it *could* have, as Poe would say:

> Of my country and of my family I have little to say. Ill usage and length of years have driven me from the one, and estranged me from the other.

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[6] The negative implications of Barritt's criticism are clear: Barritt does not mention educating the working classes or women about science. With a few notable exceptions, like astronomer Maria Mitchell, women were not publicly recognized in the media as participants in science (Bois). While upper class laymen were not participants either, exactly, they were at least educated to be spectators by the general science journals and other popular media. Women and the working classes were written into the story of American science in the decades before the Civil War only as patients and subjects. The advent of the penny press in 1835, which aimed below the upper class belt, altered this situation slightly by assuming women, laborers, and immigrants as readers of its sensational scientific articles.

> Hereditary wealth afforded me an education of no common order, and a contemplative turn of mind enabled me to methodize the stores which early study very diligently garnered up.—Beyond all things, the study of the German moralists gave me great delight; not from any ill-advised admiration of their eloquent madness, but from the ease with which my habits of rigid thought enabled me to detect their falsities…Indeed, a strong relish for physical philosophy has, I fear, tinctured my mind with a very common error of this age—I mean the habit of referring occurrences, even the least susceptible of such reference, to the principles of that science. (Poe "MS" 148)

The story goes on to relate a horrible sea adventure both very supernatural and unscientific. But Poe remained committed throughout his writings to finding that place where "physical philosophy" broke down and imagination took over, and marking that spot with words that partook of the traditions of both science and art. Poe was certainly not unique for his time in his dedication to both the arts and the sciences: Emerson's study of natural history has been detailed in depth by Lee Rust Brown; Taylor Stoehr has documented Hawthorne's fascination with nascent social sciences like phrenology; and Melville's preoccupations with industrial and marine science and technology are manifest in stories like Moby Dick and "The Paradise of Bachelors and the Tartarus of Maids." However, Poe was unique in taking the failure envelope—the line at which the stress between art and science became too much, where words failed to describe experience, experience failed to adhere to scientific principle, and words and science and

experience all failed to reliably yield what was true—as the guiding arc for his thinking and writing life.

Neither was Poe content to wrestle with these fractures alone. Through the hoax he coerced his readers into experiencing those problems in a unique way. Poe lashed out at his readers through his hoaxes for creating a society he wanted to succeed in and could not, a society that made money its end-all-be-all and valued "dull realities," as he expressed it in "Sonnet—To Science," over what *could* be (Hoffman 185). It galled Poe that he could barely make ends meet, that publishers and booksellers routinely abused writers like him while scientists (from his perspective) raked in government and private funding for their technological and medical inventions (Dinius 2). To those readers he managed to dupe with his hoaxes, then, Poe communicated for at least a few moments the discomfort he felt living in the "reality" of an America committed to what science could do and buy, not the possibilities science afforded the imagination for apprehending the true core of the world. This is a powerful motivation, indeed, for choosing the hoax as a means of criticizing the ascendancy of professionalized Baconian science in America.

For a medium for this communication, Poe naturally gravitated toward the penny press—a place where science news was not only read by a greater percentage of the population than any other journal (judging from subscription rates), but where science was also *sold* on a daily basis, in tonics, divining rods, and furnaces. The penny press was the paper crossroads where all the paths that Poe followed came together: professional and lay, educated and uneducated,

scientific and supernatural, analytic and poetic, public and private. There was not a better medium for a scientific hoax.

2. THE CONTEST BETWEEN "HANS PHAALL" AND LOCKE'S "MOON HOAX": GUESSING READER EXPECTATIONS

Poe's first attempt at a hoax is a confusing one to begin with, because it is uncertain if Poe even meant "Hans Phaall—A Tale" to be taken as a news report of a journey to the moon when it came out in the June 1835 edition of the *Southern Literary Messenger*, which he was then editing for owner Thomas H. White. Later, Poe would claim that it was both a "hoax" and a "*jeu d'esprit*," both that it was meant to fool its readers, and that it could not have, given its "tone of mere banter" (Poe "Note to 'Hans Phaall'" 69). The story concerns a burgher of Rotterdam, one Hans Phaall, who constructs a balloon and sails to the moon in order to escape creditors. Along the way, Phaall pioneers an air compressor to help him breathe in space and experiments with the reactions of a cat to the vacuum between the earth and the moon. The moon itself is apparently inhabited by dwarf-like people, or so reports a letter flown back to Rotterdam from the moon in the same balloon four years later. Poe clearly intended to continue the tale, elaborating on the moon inhabitants, but Locke's "Moon Hoax" stole his thunder, as will be seen shortly. While much of the language of "Hans Phaall" is little short of goofy, in keeping with its original subtitle, "A Tale," the opening of Poe's first attempt at a hoax sounds newsy enough:

> By late accounts from Rotterdam that city seems to be in a singularly high state of philosophical excitement. Indeed phenomena have there occurred of a nature so completely unexpected, so entirely novel, so utterly at

> variance with pre-conceived opinions, as to leave no doubt on my mind that long ere this all Europe is in an uproar, all Physics in a ferment, all Dynamics and Astronomy together by the ears. (Poe "Hans Phaall--a Tale" 565)

As will be apparent when we examine the form of science reports at this time more carefully, this opening actually conforms remarkably well to reader expectations of true science discoveries. However, at least four things in addition to the title of the story were already working against Poe if he expected Phaall to be taken seriously as an aeronaut. The tone of "together by the ears" is off, and Poe has given his byline to the story, a practice more typical of literary than news writing at this juncture in the history of American journalism. In addition, Poe's literary reputation among Southern readers at this point was shaped largely by the award-winning "MS Found in a Bottle," a horrifying and obviously fanciful tale of a phantom voyage, published in the Baltimore Visiter in 1833. Finally, the editorial introduction to this issue of the SLM by Edward V. Sparkhawk claims that "Hans Phaall" "will add much to [Poe's] reputation as an imaginative writer" even as he notes out of the other side of his quill that in the days of frequent and well-publicized experiments in balloon aviation, "a journey to the moon may not be considered a matter of mere moonshine" (Thomas 160).

As might be expected after this caviling introduction, there was no serious debate over the truth of "Hans Phaall." Dwight Thomas and David Jackson in The Poe Log list nine notices of the story, and all of them focus on the humor of the piece, not its possibility. The Charleston Daily Courier praised "the

minuteness of detail, which properly belongs to truth" in the story but went on to deem it "one of the most exquisite specimens of blended humor and science that we have ever perused" (161-162). Poe mentions two reviews in a letter to Thomas White that focus on the opening as the weakness of the piece [Poe Letters 65]. Indeed, as the story unfolds, it sounded very little like a news story. As Phaall's strange makeshift balloon descends from the sky over Rotterdam, Poe frames the Dutch response in a manner that contrasts sharply with both the relatively matter-of-fact language of the first paragraph of the story and with the parade of scientific minutiae about Phaall's balloon a few columns later:

> What could it be? In the name of all the vrows and devils in Rotterdam, what could it possibly portend? No one knew—no one could imagine—no one, not even the burgomaster Mynheer Superbus Von Underduk, had the slightest clue by which to unravel the mystery: so, as nothing more reasonable could be done, every one to a man replaced his pipe carefully in the left corner of his mouth, and, cocking up his right eye towards the phenomenon, puffed, paused, waddled about, and grunted significantly—then waddled back, grunted, paused, and finally—puffed again." (Poe "Hans Phaall—A Tale" 565)

Strange language indeed for a news report. Poe acknowledged his critics' negative reaction to the "tone of mere banter" in the tale; he believed, in fact, that the humorous tone of "Hans Phaall" was the principal reason it did not fly as a hoax (Poe Literati: Richard Adams Locke 160). Accordingly, he tuned the language of his future hoaxes to a more newsy resonance. However, in spite of its

initial fizzling, “Hans Phaall’s” public career was just beginning. It got a kick start from another fantastical moon story that appeared just two months later in the brand new penny daily the New York Sun.

Before the second moon hoax is considered, a digression is in order to explain the place of the Sun in the reading life of antebellum New York. Founded in 1833 by Benjamin Day, the Sun was the harbinger of what would be termed the “penny press”; it was a single sheet folded to four pages and sold for a penny, containing, in addition to the usual copious advertisements, news items appealing especially to the working class and new immigrants, its target demographic (Fedler 68). The Sun contained notices of all the sorts of things that still make up the bulk of conversations at coffee shops and street corners: fires, accidents, the daily police blotter, spectacles and scientific wonders on display at local museums, and even humorous recitals of domestic disputes and other “human interest” stories. These quotidian topics actually constituted a radical departure from the reading material New Yorkers previously had at their disposal. The literary weeklies, which cost six cents instead of a penny, were almost all owned by political organizations that filled their pages with political news and party propaganda. The penny paper’s low price and gossipy material aligned it with the Jacksonian democratic spirit in general and with the working class and immigrants in particular. New York Herald editor James Gordon Bennett trumpeted in the pages of his penny daily: "I feel myself in this land to be engaged in a great cause--the cause of truth, public faith, and science against falsehood, fraud, and ignorance" (Nelkin 85). He had some justification for his

claim to being the paper of "public faith" because of the sheer number of people who read the penny dailies. Frank Luther Mott argues in American Journalism: A History that the 1830s saw more American newsreaders than ever with an influx of immigrants who took their voting rights seriously and read the papers for political information; with public education squashing illiteracy to 9% or less and creating an ever-growing percentage of women readers;[7] and, with advancements in the material conditions of reading as simple as better lighting in homes and streets (303). So, the penny press had a broad-based lower-and-middle class audience who were interested in information both for entertainment and for political use.

The New York Sun had on staff a science writer, one of the few at the time, named Richard Adams Locke. Benjamin Day had hired him to cover the trail of the infamous cult leader Matthias the Prophet. Locke's skillful handling of the bizarre metaphysical and religious elements of the story put the Sun ahead of its rival penny dailies, Bennett's *Herald* and the *New York Transcript*, in subscriptions. So, after that Locke was employed to cover topics of general interest in the sciences and philosophy especially for the Sun (Locke Moon Hoax xxxi).

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[7] Sandra Harding claims the industrial revolution had the opposite effect on the woman reader—that it kept her out of all serious centers of policy-making because the industrial economy constructed her as less productive of market goods, and therefore less valuable. Consequently, her education was not a priority. However, Mott and Harding are not necessarily arguing incommensurate points; it is feasible that women could be educated well enough to read the penny dailies but might still be excluded from the elite literary and scientific communities—therefore, the political communities.

On 21 August 1835, a blurb appeared on page two of the Sun claiming that Sir John Herschel, who was known to most news readers to be engaged in observations in South Africa with his new telescope, had made some remarkable discoveries. There was nothing further for four days, and then, on the front page of the 25 August Sun, after an editorial note advising readers that the following story was reprinted from the Edinburgh Journal of Science, minus most of the "more abstruse and mathematical parts" of the discovery, the story commenced:

> In this unusual addition to our Journal, we have the happiness of making known to the British public, and thence to the whole civilized world, recent discoveries in Astronomy which will build an imperishable monument to the age in which we live, and confer upon the present generation of the human race a proud distinction through all future time. It has been poetically said, that the stars of heaven are the hereditary regalia of man, as the intellectual sovereign of the animal creation. He may now fold the Zodiack around him with a loftier consciousness of his mental supremacy. (Locke Moon Hoax 7)

After some preliminary reflections on the wonders of astronomy, the story went on to detail how the lens for Herschel's telescope was ground, how it was transported to South Africa and the observatory assembled, how the problem of insufficient lighting was overcome, etc., to an almost overwhelmingly technical degree. The next day the Sun ran the columns revealing what readers had been waiting for: the moon bison, man-bats, moon poppies, and moon beavers that Herschel had glimpsed through his telescope. The paper sold 19,360 copies, the

largest circulation of any paper ever in America (Locke Moon Hoax vii). The series went on for a week, and the reaction of the competing media was almost perfectly divided. Of the major New York newspapers surveyed by Ormond Seavey in his 1975 edition of Locke's story, six came out in support of the Herschel report, three stayed on the fence, and five criticized it, although most of the negative responses were indirect or ironic, perhaps hedging strategies just in case a confirmation from Herschel came through. Two of the critical papers, the Journal of Commerce and the *Herald*, suggested that the whole thing was a hoax; the Journal of Commerce even connected Richard Adams Locke's name with the story, on the strength of a "confession" by Locke to a Commerce reporter in a pub. James Gordon Bennett attacked Locke's character in a Herald editorial, intimating aristocratic dissolution involving a chambermaid. Locke's only public response to any aspect of the brouhaha was to take the moral high ground in a defense of his good name (Locke Moon Hoax xvi). Bennett and the other editors then proceeded with a more indirect tone for the duration of the two-week media debate following the appearance of the story. A rumor cropped up that scientists from Yale had taken a train up to New York to consult with Locke about the story but had to return unsatisfied; the rumor, though repeated often in histories of the hoax, remains unsubstantiated (Locke Moon Hoax xiii).

Whatever people may have finally decided about the "Moon Hoax," it was the first major hoax of its kind (Roggenkamp), and it fooled a good percentage of New Yorkers at first—educated people like clergy and scientists as well—according to Locke's contemporary Benson Lossing in his History of New York

City (Moss 87). Another contemporary, British writer Harriet Martineau, said she encountered on her 1835 visit to the Northeastern states an atmosphere of almost complete credulity surrounding the hoax, with very few exceptions. She defended American readers, however, by claiming that the "Moon Hoax" would have gone even further in Europe, since she deemed the quality of science education in American comparatively high (22-23).

People either believed or suspected Locke's story; parodies immediately flourished in the Herald and elsewhere, but nothing was certain except for the Sun's subscription figures. Locke's unwitting accomplice in the hoax, Sir John Herschel, did not find out about the hoax until four months later, and his reaction evinced an appreciation of the human imagination that even Poe would have approved: Herschel claimed in a letter to the American captain who brought him a clipping of the hoax that it was a "perpetual reminder how trivial are the discoveries which all our boasted science has yet revealed or is [likely?] to reveal for ages to come in comparison of what exists unknown and unsuspected among the realities of nature" (1). Locke himself claimed *ex post facto* that he had meant his story as a satire of the famous astronomer Thomas K. Dick's bizarre plan to communicate with moon-beings through geometric shapes; however, in view of how the report was taken, Locke felt it was an "abortive satire… and in either case I am the best self-hoaxed man in the whole community" (Locke Celebrated "Moon Story" 30).

Edgar Allan Poe, on the other hand, made up his mind almost immediately about the hoax. In a letter to editor John Kennedy dated less than two weeks after the "Moon Hoax" finished its run in the Sun, Poe accused Locke of plagiarism:

> Have you seen the "Discoveries in the Moon"? Do you not think it altogether suggested by *Hans Phaall*? It is very singular, — but when I first purposed writing a Tale concerning the Moon, the idea of *Telescopic* discoveries suggested itself to me — but I afterwards abandoned it. I had however spoken of it freely, & from many little incidents & apparently trivial remarks in those *Discoveries* I am convinced that the idea was stolen from myself. (Poe Letters, vol. 1, 74)

Apparently Poe pursued these charges publicly in the papers but not legally, and he was not the only one who saw a similarity between the two moon stories; the New York Transcript printed them together and speculated they were by the same person (Locke Moon Hoax 69). Poe eventually had to relinquish his literary vendetta against Locke as it proved unproductive (Poe Literati: Richard Adams Locke 162). However, in the process of protesting both the similarities and the differences between the two hoaxes, Poe revealed a great deal about the construction of "Hans Phaall" and the assumptions that he made about popular science reading habits while fuming over the "Moon Hoax." These assumptions should concern us because they were tested on real readers, and at least some of them rang true. In other words, we know that Poe and Locke correctly guessed a percentage of their readers' expectations because the "Moon Hoax," in particular, worked. It was *in toto* a successful experiment in producing a certain reader

response via a series of certain rhetorical moves. It is these expected rhetorical moves that this project aims to recollect and use as the basis for analysis of Poe's future hoaxing practices.

3. COLLECTING READER EXPECTATIONS

It is impossible to determine precisely how readers in the 1830s and 1840s read popular science reports. No judgments made from our perspective are accurate or comprehensive, and contemporary opinions are biased by their imbrication in the reading culture. As James Machor describes the difficulty, "…the impossibility of full and unmediated access to historical readers ineluctably limits efforts to 'recapture' reading as a historical act" (xxii). This is precisely the problem that has dogged historical reading researchers, as discussed in the methods section of Chapter One. To briefly recap the double bind of historical rhetorical analysis, many New Historical assessments of reading in the nineteenth century have provided rich historical detail and context that still, however, fall short of describing how readers read at the time, (Machor x). On the other hand, modern Reader Response approaches to nineteenth century texts can produce anachronistic readings that communicate little besides the idiosyncratic reactions of a single twentieth or twenty-first-century reader. Although it is certainly not of the Reader Response school, Roland Barthes's influential reading of Poe's hoax "The Facts in the Case of M. Valdemar" is a good case study in the methodological pitfalls of a reading that ignores the original publication context of the text.

Barthes's study begins by claiming history is unnecessary for the reading of "M. Valdemar," but he cannot avoid invoking it to explain how the story taps into a roiling nineteenth-century craze over mesmerism (Barthes 86). When it comes to interpreting the cultural codes the story supposedly carries, Barthes eschews the publication history of "M. Valdemar"—including the crucial fact that it was originally read not as science fiction, as Barthes reads it, but as news. That basic assumption about the truth-value of the piece radically alters the interpretation of all codes in "M. Valdemar," but Barthes does not acknowledge this dynamic in his reading.

The present project is an attempt to find a corrective to this sort of Heisenbergian paradox of losing either the context or process of a reading event by focusing too closely on the other term. In order to balance the terms, this project will treat the hoaxes as case studies in the successful identification and re-performance of expectations that readers of popular science in the 1830s and 1840s might have had. The recuperation of these expectations—in essence a set of default beliefs readers may have held in common when approaching science news—will provide a portrait of science news reading in the nineteenth century that takes into account the historical context of that reading while still providing a framework for describing an individual reading of a text.

These reading expectations naturally range over a broad field, from expectations about particular authors' writing styles to expectations completely beyond the pale of study—like a personal predisposition to disbelieve anything anyone says because of a recent betrayal by a friend. For the purposes of this

study, I will focus on recuperating only expectations concerning the genre of the popular science report and "ethnoscience" or lay beliefs about science—what Barthes terms the "code" of science.

Further, since this is an experiment in this type of reader-oriented criticism, there is no protocol for reconstructing reader expectations. In this case, some will be collected from Poe's and Locke's own words about the literary contest between their hoaxes. In addition, some reader expectations are discernable in the comments in the contemporary papers about both hoaxes. Finally, a small sample of popular science reports of the time will be examined for similarities in form, style, and content, and those similarities will be treated as conventional expectations that antebellum newsreaders developed from repeated readings in this genre.

3.1 Wrangling over the "Moon Hoax"

Poe attacked the "Moon Hoax" repeatedly in the years between its publication and his final burying of the hatchet in his 1846 portrait of Locke for his Literati of New York City installments in Godey's Lady's Book. When he reprinted "Hans Phaall" as "The Unparalleled Adventure of One Hans Pfaall" in Tales of the Grotesque and Arabesque in 1840, he attached a "Note" to it comparing the two hoaxes and criticizing Locke's for its factual shortcomings. This essay was repeated in essence in one of Poe's freelance letters for the Columbia Spy in 1845 and again in the Literati portrait of Locke in 1846.

Poe's list of the errors in Locke's hoax is lengthy, and most of his complaints are easy to verify on a close examination of the text. Poe's list of

errata includes these facts: that creatures seen on other planets would all appear upside down—if in fact you could see any more than the tops of their heads—and that Locke had made several simple multiplication errors in reporting the magnification power of Herschel's telescope and the relative sizes of the earth and moon. That Poe was able to catch all of these errors is a testament to his wide reading and acumen in astronomy and physics. In fact, both he and Locke benefited from the 1834 American reprint of Herschel's Treatise on Astronomy in preparing their hoaxes (Poe Literati: Richard Adams Locke 159; Locke Moon Hoax xxv). However, as Poe points out in his essay, Locke's scientific gaffes did not seem to have much effect on his readership, who suffered from the "gross ignorance which is so generally prevalent upon subjects of an astronomical nature" (Poe "Note" 70). Overall, Poe attributes the success of Locke's hoax to the following factors, as summarized in Table 3.

Table 3: Poe's characteristics of a successful hoax*

Content of Hoax	**Novelty:** being "first in the field" and thus finding readers unprepared to analyze the merits of the discovery because of lack of previous experience with it. **Sensation:** The "rich...fancy" of the amazing man-bats, moon-beavers, etc. **Detail:** Its "execution of details"; the minute observations about the construction and dimensions of the telescope and the labors of Herschel and his assistants to solve methodological problems. (Mabbott 52-55) **Foreign:** "Exclusive information from a foreign country"; by this Poe seems to imply not only the strategy of making the hoax hard to confirm, but also the name-dropping of the famous foreign scientists and journals. **Plausibility:** "Analogical truth" and "plausibility," which Poe believes were performed to perfection in his "Hans Phaall."
Presentation of Hoax in its Medium	**Medium:** The reputation of its medium. The *Sun* was not yet known for printing hoaxes. **Presentation:** The "consummate tact with which the deception was brought forth"; Poe was undoubtedly recalling the blurb on page two of the 21 August 1835 Sun forecasting the discovery and the judicious periods of suspense between the parts of the report.
Style of Argumentation in Hoax	**Internal Coherence:** consistency of the argument, an issue separate from accuracy. **Verisimilitude**: "The exquisite vraisemblance of the narration"; more than one critic of Locke's hoax remarked on his elegant style, appropriate to such an awesome discovery, and the realistic sound of the research diaries "transcribed" by the *Edinburgh Journal of Science* and belonging to Herschel's chief assistant, Andrew Grant.

Poe's criteria are internally consistent because each point is independently verifiable upon examination of both texts. However, are his criteria *externally* valid as accurate observations of the reading culture at that time? Before moving

* Most of the criteria come from the version of the essay appearing in the Columbia Spy. The Foreign, Presentation, Verisimilitude, and Plausibility criteria are added in the version of the essay incorporated into Poe's Literati sketch of Locke.

on to collect further reader expectations, a brief comparison of the three overarching categories of expectations—scientific content, scientific style, and the penny press medium—against public conceptions of them at the time will help determine if Poe's observations of reader habits have any external validity. This analytical move comparing Poe's claims to the culture comes from Steven Mailloux's methodology in Rhetorical Power and helps keep Poe's reading in check culturally (Mailloux 57).

Regarding the novelty of the scientific content of the hoaxes—astronomy—Poe claims that the general reading public was woefully under-informed. This complaint anticipates C. L. Barritt's criticism in his 1845 Broadway Journal article concerning physics. In 1835 all eyes were trained on the night sky watching for Halley's comet, and some believed it would smash into the earth; in general, people were ignorant of what shooting stars and comets even were, according to an article on that subject in the July 1835 American Journal of Science. The well-educated members of the upper class and business class had access to Herschel's Treatise on Astronomy and Scottish astronomer Thomas Dick's popular works. Almanacs were popular in the first quarter of the nineteenth century among the middle and agricultural classes, and most general weeklies and monthlies carried articles on astronomy (Locke Moon Hoax xxviii-xxix). The urban working class and immigrant class, however, would have received most of their astronomical acculturation through rumor and the penny press. This educational inequity notwithstanding, even Thomas Dick, as mentioned above, thought the moon was inhabited. No one had seen enough of it

to know differently. Locke's hoax stepped into a *kairos*, a rhetorical opportunity, afforded by the excited desire to know more about the moon on the one hand, and the scantiness of hard information about it among all classes of readers, on the other. Benson Lossing wrote in 1884 of the sad state of astronomical understanding that Locke exploited with his hoax: "Locke had...engaged in preparing the 'Moon Hoax'....for the purpose of testing the extent of public credulity. It was a successful experiment" (Moss 87).

So, the observation Poe makes about the scientific ignorance of Locke's readers seems valid. His observations about the power of foreign name-dropping in the hoax, the sensational nature of the discoveries, and the weight of scientific detail are more difficult to verify culturally. It is hardly worth belaboring name-dropping as a key element of Locke's hoax since it is still a powerful *ethos*-oriented device in current popular rhetoric of all kinds, from celebrity endorsements to society columns. In terms of the sensational elements of Locke's hoax, the moon-bison and poppies, the graduated races of intelligent beings, one needs look no further than P.T. Barnum's Feejee Mermaid and the other "artifacts" in his American Museum to appreciate the appetite in Jacksonian America for the spectacular.

Barnum himself was only exploiting a tendency in America at that time to believe in natural wonders, a "predisposition to accept the mechanically probable or the organically possible...[that] was a peculiarly patriotic position in Jacksonian America" (Harris 73). There were legitimate reasons for Americans to put their faith in the seemingly fantastic. The American subcontinent was being actively

explored by expeditions like Lewis and Clark's and the Wilkes Expedition (the United States Exploring Expedition). These adventurers returned with an astounding bounty of natural specimens along with Native American cultural artifacts. The first bison and gila monsters appeared just as outlandish to New Yorkers as Barnum's Feejee mermaid (cobbled together from a mummified monkey and a fish). In a way the feeling of many Americans toward new scientific discoveries was like Poe's toward his flying machines: an optimistic focus beyond what was to what could be. Barnum thus capitalized on a nearly inexhaustible supply of cheerful, patriotic credulity on the part of Americans who were as agape on their new home continent as children in a candy store. To illustrate this good-natured naïvete, cultural scholar Jonathan Elmer discusses the sign in Barnum's American Museum that pointed "To the Egress." When patrons, curious to see a female "egre," would pass through the door, they would find themselves out in the alley with no way back into the museum but to pay the fee again. Elmer claims that being duped provided no small amount of pleasure for those whose egos were not caught up in being right all the time and that Americans, in general, loved to be fooled. "What Barnum [sold], by means of his objects, [was] interpretation" (Elmer 184). It was the experience of perceiving and deciding that Americans enjoyed, the freedom they felt in the Jacksonian era to make the reality they wanted to live in. When Poe sniped that Locke's readership valued sensation over hard fact, he feigned disdain for their comfort with ambiguous truth-values. However, as already evidenced by his tendency to argue for the value of his stories on the basis of their plausibility and potentiality,

not their factuality, Poe clearly shared some of Locke's readers' love of suspended meanings and multiple possible realities.

In terms of the "weight of scientific detail" criterion that Poe felt was crucial for a successful scientific hoax, his high valuation of it was corroborated to some extent by the rhetoric the Sun used to introduce Locke's story. It issued the following caveat:

> We are necessarily compelled to omit the more abstruse and mathematical parts of the extracts however important they may be as a demonstration of those which we have marked for publications; but even the latter cannot fail to excite more ardent curiosity and afford more sublime gratification than could be created and supplied by any thing short of a direct revelation from heaven (Locke Moon Hoax ix).

Here was the dual implication that the Sun's readers would not understand the math, but they would nonetheless be impressed by it. It was precisely because the typical reader of the hoax could not understand the science that it was so valuable in providing a hard veneer beneath which s/he could not penetrate to check the facts. Poe prided himself on being able to do just this, but he repeatedly claimed himself to be in the minority. He constructed "Hans Phaall" with more attention to its mechanics than did Locke, perhaps in an attempt to impress a more scientifically cultured set of readers. We will return to this possibility in the discussion of Eureka and Poe's relationship to his readership in the final section of this chapter. Notwithstanding, it appears probable that Poe was in tune with

the expectations of his readers when he championed scientific detail as a capital method of pulling formulas over their eyes.

The next category of expectations, concerning the medium of the hoaxes, is crucially important for any study of hoaxing, because it is obvious that "Hans Phaall" was read differently published in Tales of the Grotesque and Arabesque than it was as originally published in the Southern Literary Messenger; and, Locke's story is read very differently when published as The Gregg Press's edition of The Moon Hoax in 1975 or even as The Celebrated Moon Story in 1852 than it was read as originally published in the Sun. Despite Bennett's protestation that the penny press stood for "the cause of truth, public faith, and science against falsehood, fraud, and ignorance," its readers knew it to publish the opposite on occasion (Nelkin 85). However, on balance, the Sun did publish perhaps a greater percentage of factual information than false, so it seems unlikely that any story in the Sun would have been judged false out of hand until the facts were in. The "Discoveries in the Moon," as Poe pointed out in the Presentation criterion above, was certainly presented by the Sun exactly as any other important discovery just received from abroad would have been. This could not have but helped to contribute to its appearance as a factual report.

Current research into the effects of presentation and medium on readers validates Poe's claims about their power. Rolf Zwaan has demonstrated recently that the same text will be interpreted differently by two groups of readers if one group believes that the text comes from a newspaper and the other group believes it came from a short story collection. The two groups of readers employ different

cognitive processes during reading and read for different purposes. When readers believed they were reading a short story, Zwaan's subjects took longer to read the text and had better memory for surface features, i.e. exact wording and phrasing of the text. However, these readers were less likely to pay attention to situational aspects of the story, meaning those aspects that connected the story to the real world of the reader's experience—the "who, what, when, where, and why." Subjects who read the story as a news article, on the other hand, read much more quickly than the literary readers but had poor recall for exact phrasing. They exhibited better recall for situational information than the literary readers, evincing more integration of the elements of the story with the world of their experience. Zwaan's findings suggest that hoaxes must be examined through the lens of reader expectations about medium. When read in a news context, "Hans Phaall" plays with issues of reality and world-view construction; thus, it is a hoax. However, when read in Poe's Collected Tales and Poems, the story is science fiction, and truth-value questions are not part of the reading experience.

Recent research in cognitive psychology supports these separate fields of expectations for fiction and non-fiction media. Leda Cosmides and John Tooby at the University of California at Santa Barbara have studied "decoupling," or the ability to suspend a meaning or restrict its scope so that it does not apply to the whole epistemological field of the reader—which "truth" does, in Cosmides and Tooby's model. In fiction reading interpretations arising from the reading process are "tagged" with a scope operator that prevents them from changing the world-view of the reader until further information is gathered, or, indeed, perhaps ever.

While news articles would potentially be read as communicating "truth," and therefore their meanings would be applied globally in the readers' world-view, fictional interpretations would be "decoupled" and their truth-values held in suspension (Zunshine 219). This distinction will be useful for separating the reading activities of the majority of readers who read Poe's hoaxes as news from those of the few readers who read the story as fiction, purely for entertainment.

Not only are these observations of Poe's about Locke's successful rhetorical strategies backed up by recent research, but even more significantly, they were also noted and discussed by contemporary commentators on the hoax. These criticisms are worth considering before turning to a more detailed examination of how well the style of Locke's hoax matched the style of science news articles in general at the time.

3.2 Reacting to the "Moon Hoax"

As already discussed, the papers in New York City took up the topic of the Moon Hoax with relish in the two weeks after it was printed in the Sun. The papers that professed confidence in the story as it was presented pointed to the following features as hallmarks of the report's authenticity: Sir John Herschel's name and reputation and the attendant "marks of transatlantic origin," the "intrinsic evidence" of the story, its "versimilitude," its probability, and its novelty in the field of astronomy. Those papers that expressed suspicion of the Sun's report pointed to factual errors primarily, since an absolute discrediting of

the story was not possible without Sir John Herschel's testimony.[8] Significantly, the New York Sunday News, one of the few papers at the outset to express grave doubts about the truth of the story, seemed to defer its judgments for fear of offending Herschel: "After all, however, our doubts and incredulity may be a wrong to the learned astronomer, and the circumstances of this wonderful discovery may be correct. Let us do him justice, and allow him to tell his story in his own way" (Locke Moon Hoax 62). It would seem, then, from the point of view of this paper and the others that were waiting for a decisive word from Herschel, that *ethos,* or personal credibility, was a stronger factor than *logos*, or the facts of the story, in constituting their judgments about Locke's report. A few papers, interestingly, chose to downplay the issue of authenticity in favor of praising Locke's story for its entertainment value. The Philadelphia Inquirer wrote, "Whether true or false, the article is written with consummate ability, and possesses intense interest" (Locke Moon Hoax 62). And the Sun, which had stuck by the veracity of Locke's story from its first installment on 25 August to Benjamin Day's last editorial on the subject on 16 September, claimed in that final piece that Locke's report, if eventually proven to be nothing more than rumors from Scotland, still had a "useful effect in diverting the public mind, for a

[8] Ormond Seavey has also collected a few responses from public figures in New York City, via letters or diaries, and as with the papers, many commentators who suspected the hoax did so on the grounds of its faulty science. Contemporary Michael Floy complained in his diary, "The author of these wonders says that an enormous lens of 30 feet diameter was constructed…but he should have said a lens of 100 feet diameter, as it is shown by writers on optics that such a diameter would be required to ascertain if [sic] any inhabitants in the Moon. Why not make a good lie at once?" (Locke Moon Hoax xiii)

while, from that bitter apple of discord, the abolition of slavery"(Locke Moon Hoax xxii).[9] Many New Yorkers, then, seemed surprisingly content to keep the issue of truth suspended, and to preserve the essence of the hoax, what Poe would find so appealing about it: its ability to put reality in play, in tension.

3.21 Parody

In the heat of the public debate over the hoax, J. Gordon Bennett's Herald mounted a different sort of critique of Locke's story, one that is extremely useful for our purposes of identifying reader expectations—a parody. On 2 September 1835, the *Herald* printed "A BETTER STORY.—MOST WONDERFUL AND ASTOUNDING DISCOVERIES, BY HERSCHELL, THE GRANDSON, L.L.D., F.R.S., R.F.L, P.Q.R., &C. &C. &C."" A parody, like a hoax, must foreground what is salient to the reader to achieve its effect. If a reader did not notice a particular feature in the original, the parody cannot achieve a comic effect by mimicking it. So, the parody of Locke's story is a good barometer of what people

[9] The connections between contemporary theories of race and Locke's "Moon-Hoax" is intriguing but beyond the scope of this chapter. It is ironic that Day claims the hoax is a "diversion," because in fact the hoax is deeply racist: the more advanced Locke's moon-beings become, the lighter their skin. This motif ties in with theories of the day, like Samuel Morton's (championed by no less a personage than famous naturalist Louis Agassiz), that justified slavery through "scientific" proof of inferior brain capacity on the part of Blacks and Native Americans. By this reasoning, these groups were not even human, and so slavery was no different and no morally worse than owning livestock. Stephen Jay Gould replicated Morton's study and found no significant differences in brain capacity. His results and discussion of the relationship of ideology to science can be found in his article "American Polygeny and Craniometry before Darwin: Blacks and Indians as Separate, Inferior Species," a chapter in editor Sandra Harding's The Racial Economy of Science.

paid attention to in the story. This parody mocks five particular features of Locke's tale, as diagrammed in Table 4.

Table 4: Salient features of "Moon Hoax" parodied by Herald

Feature of "Moon Hoax"	Feature's "double" in Herald Parody
Credentials/authority of foreign scientists	In the title: "…BY HERSCHELL, THE GRANDSON, L.L.D., F.R.S., R.F.L, P.Q.R., &C. &C. &C.""
Locke's grandiose metaphors like "cloak of the Zodiack"	Phrases like "stellar diadems" and "more numerous than the sparks which escape from a blacksmith's forge"
astronomical jargon	"hydro, philo, solar, high pressure steam telescope."
Locke's use of real-life analogies to make sense of immense astronomical distances and figures	"Latitude and longitude can be determined, in less time than an alderman could swallow a basin of turtle soup…."
the "weight of scientific detail"	"Herschell then tasted the water of said ocean, by means of a very long hydrostatic tube, attached to the telescope. It has a very curious taste. He found it was composed of the following mixture, viz: 2 parts of lemonade, 1 part printer's ink, 1-2 parts mint julep, 1-2 parts flower of brimstone. There was also a slight tincture of blue vitriol" (Locke Moon Hoax 65).

The Herald's parody thus corroborates at least three major judgments of Poe's about what was salient to readers of science news: authority, precision, and "verisimilar" jargon. Readers would have immediately recognized the bombastic metaphors and real-life analogies as characteristic features of science news articles. We turn next to these expectations, which readers of Locke's hoax would have developed quasi-unconsciously through their reading of science news.

3.3 Science writing in America, 1830-1845

To validate Poe's observations about how closely Locke's rhetoric mimicked the style of a "real" science report, we need to compare his hoax, and Poe's, with contemporary popular science writing. Specifically, we need to consider what might have been salient to readers of science news in the 1830s and 1840s.

Antebellum news readers knew what to expect from science writing not because they were educated to view it in a certain way, but because they read it and developed assumptions based on their repeated experiences with it. It is well-documented that readers employ schemata (structured assumptions about speech and reading activities) to save cognitive effort (Kintsch 94, 111). The more assumptions that can be made about a text based on past experience with texts like it, the greater the processing capacity that can be dedicated to remembering new information in the text and evaluating it appropriately. Genre is probably the usual arena for exploring these assumptions, since a genre is itself a sort of schema or pattern of rhetorical moves that has been codified in medium, format, style, and content over the course of repeated interactions between author and reader through a certain textual medium. As discussed in Chapter One, just this sort of feedback loop operated in the development of the research article, according to Charles Bazerman's study of the Philosophical Transactions of the Royal Society.

3.4 Generic cues in antebellum science news

Since genre is such a powerful operator in the reading experience, it is reasonable to expect that the original readers of Locke's Moon Hoax and "Hans Phaall" came to these texts with definite expectations of what they were going to read, based on their past experiences with popular science articles in newspapers and magazines. To try to discern what some of these expectations might have been, I examined a small sample of 11 contemporary newspapers and literary magazines for two purposes: first, simply to count how many and what kinds of science articles appeared in them, and second, to examine those articles for shared cues that might have become codified as genre expectations by readers through experience.

The eleven newspapers and magazines selected are listed in Table 6 below. They were chosen either because Poe specifically mentioned having read science in them, or because Frank Luther Mott listed them as examples of general science magazines in A History of American Magazines: 1741-1850. The one slightly anomalous journal in this survey is the American Journal of Science (AJS), which was certainly considered a general science journal, and was read more widely than the technical journals of the scientific societies. However, the AJS was not likely to have been read by the working-class target demographic of the penny dailies due to constraints of money, time, and education. It is included here to represent the general science reading material available to the five percent of Americans with a college education at this time, like Poe himself (Lagemann).

For each newspaper or magazine, I selected a sample issue during the range of years of Poe's writing career, roughly 1830 to 1850. Whenever possible, an issue was selected from 1835, the year of the contest of Poe's and Locke's hoaxes, just to sample the kinds of topics readers were seeing in the media that year. This was not always possible as many journals, like the Scientific American (est. 1845), did not begin publishing until after that year; and, some years of some older newspapers are missing from the microfilm series collected by the American Antiquarian Society.

Within each issue selected, all of the articles and advertisements concerning issues of science and technology were categorized and counted to provide a snapshot of popular or general science reading in Antebellum America. The precise categorization of the articles is not as important for our purposes as an overall feel for the range of genres dealing with science and technology that was available to readers. I found three major types of science writing:

Major Types

- technology articles
- short, popular science blurbs and items
- longer articles treating "pure" science either as experimental report or educational piece

The definitional difference between science and technology is largely a product-driven one: if the article treated an invention, medicine, or machine, it was counted as technological. If it treated principles of science (including "pseudosciences" like mesmerism) or the history of the sciences, I counted it

scientific. Within these three categories, several sub-categories were discernable. First, there were nine shorter popular science and technology subtypes:

Shorter Popular Science/Technology Subtypes

- meta-commentary: articles specifically treating the state of science and/or technology in America
- blurb/factoid: short (100 words or fewer) items announcing a new scientific or technological discovery or simply stating a "gee whiz" fact about science
- ad
- joke
- poem
- sensation/spectacle announcement
- educational item
- how-to: treats technological or practical procedures for the lay reader
- home experiment: designed so the reader could observe a more abstract scientific principle at work

Within the category of longer "pure" science articles, three subtypes emerged:

Longer "Pure" Science Subtypes

- experimental reports
- observations
- reviews of science books.

The results of the survey are presented in Tables 5 and 6.

Table 5: Antebellum media surveyed with number of science articles per issue

Magazine/Newspaper	Total science articles
Scientific American	80
Family Magazine	60
American Journal of Science	28
NY Sun	15
New York Herald	14
American (Whig) Review	7
Albany Argus	5
North American Review	2
New Yorker	1
Southern Literary Messenger	1
Broadway Journal	1

Table 6: Distribution of categories of science articles across media sample

Major category	Sub-category	Totals for sub-categories	Sub-category % of total science articles	Major category % of total science articles
Pop. Sci.	Meta	4	2.5%	27%
	Poem	5	3.1%	
	Spectacle	1	.6%	
	Joke	7	4.3%	
	Blurb	27	16.5%	
Pop Tech.	Educational	5	3.1%	46%
	Ad	47	28.8%	
	How-to	3	1.8%	
	Blurb	9	5.5%	
	Invention	11	6.7%	
"Pure" sci.	Educational	24.2*	14.8%*	27%
	Experiment	2	1.2%	
	Observation	10	6.1%	
	Review	8	4.9%	

* Totals and percentages for this category were adjusted as follows: the large number of articles in the educational biannual Family Magazine (53) was proportionally reduced in order to treat it statistically as a monthly, thus enabling a more equitable comparison with the other magazines and newspapers.

These results show, unsurprisingly, that the more specialized science journals carried the most science pieces. The dominance of the Popular Technology category is due to the prevalence of Ads, which accounted for almost 29% of all science articles, the largest "market share" of any of the sub-categories. The strong showing of Educational pieces (17.9% total) is slightly misleading as these pieces were almost entirely confined to three of the 11 journals in the sample—the Scientific American, the American Journal of Science, and the general-education Family Magazine—and thus were not evenly distributed throughout the media, as were the Ads and the Blurb/Factoids, which showed a 16.5% market share. In these shorter pieces, science was marketed to the reader as a vendor of goods and services—technologies, in other words; or, as in the case of the Blurb/Factoids, as "gee whiz" entertainment. This sample from the media corroborates Robert Bruce's study of antebellum science, The Launching of Modern American Science. In a review of the letters and journals of American scientists of the era, Bruce found that they felt a constant pressure to produce technologies; many felt they had to be tied to industry in order to get even the most basic funding for their research (72). The predominance of articles selling or advertising science here in part confirms the anxieties of these scientists.

An examination of the rhetoric of the longer articles bears out these observations to some extent, as science was figured as solving problems that faced average Americans, whether abstractly or concretely via technologies.

While no two articles share exactly the same rhetoric, there are some striking recurring rhetorical features, summarized in Tables 7-9 below with examples:

Table 7: Typical opening of antebellum science articles

Rhetorical Feature	**Examples (with features emphasized)**
"Mystery" opening • emphasizes sublimity of phenomenon with words like "wonder," "enigma," "mystery," "puzzle," "awe-inspiring," "amazing," etc. • often employs rhetorical questions to emphasize "mystery" aspect of phenomenon. • often implies that the phenomenon is a matter of almost universal attention and wonder.	"Every person of a reflecting mind must have often asked himself the question, *what are shooting stars?* The suddenness of their appearance, the rapidity of their motions, their *brilliancy*, the trains which they frequently leave behind them are well calculated to *awaken curiosity*…"AJS "Few subjects of improvement have received *more attention* for the last twenty years than this, and it is with many people a matter of *astonishment*, that as late as within fifty years, and in most enlightened parts of this country, chimneys have been erected with fire places in which more than twelve times the fuel was required to be consumed in order to warm the room, that is now required for the same, or an equal purpose, in a modern approved stove."Scientific American "CURIOUS EXPERIMENT—Last Saturday a *novel* sight was seen in our harbor…"Herald "This instrument [hydro-oxygen microscope] presents to our view a world of *wonders*. Its magnifying powers are *astonishingly* great."Herald

Table 8: Typical structuring of "problem" phase of antebellum science articles

Problem: ignorance on subject • typically follows the "mystery" opening immediately • claims that virtually no one knows the causes of the phenomenon • occasionally provides a folk explanation for phenomenon as comic relief	"…and in *the absence of definite knowledge* respecting them [shooting stars], it is not perhaps strange that we have been favored with *an abundance of speculation and crude conjecture*…"AJS "*Still there are those who appear to understand little* of the true principles of economy in this respect…"Sci. Am. "It was thought that [the boat] had *a little infernal machine* in her bottom…"Herald
Transition: "smart people, however, know the answer…." • immediately follows Ignorance segment • implies the existence of a solution/explanation for the phenomenon • often includes name-dropping of cognoscenti	"Among *the most extensive observations of this kind are those made by Professor Brandes of Lipsic*; and as they are but little known in this country, it may be acceptable to some readers of the Journal, to be furnished with an abstract of them"AJS "But we are glad to find many *who understand the thing better*, having looked into the theory of it…"Sci. Am. "It *was finally discovered, however*, that she was 'pulled' over the water by a large kite"…Herald

Table 9: Typical structuring of "solution" phase of antebellum science articles

Solution 1: Details of solution/explanation, often with illustration by example or scenario • illustrations often invite readers to test out the solution/explanation for themselves • abstract principles are often made more familiar through the use of "real-life" analogies to things in the readers' experience.	"…and the quantity of heat thus circulated, is in some measure proportionate to the velocity of this current. For *an illustrative experiment* on this subject, let any person select a spot on the surface of a stove that is red-hot, and blow with a common hand bellows directly on that spot for a few minutes…"Sci. Am. "…a large kite, at a great altitude, the line of which was fastened to the bows of the boat." Herald "The interstices of the finest lace appear *wide enough for a body of a man* to pass through them: the threads themselves are like cables. The softest down of the thistle appears stiff and *thick as the quills of a porcupine*" Herald
Solution 2: use/benefit of principle • often introduced by a concluding sentential adverb like "therefore," "thus," "then," "so," etc. • gives the pay-off of the solution/principle, in terms of money, efficiency, or occasionally, new perspective or knowledge • often contains sense of immediate benefit using words like "soon," "now," "shortly," "immediately"	"Now, *therefore*, we would recommend that in the construction of stoves, regard may be had to *facilitating a free circulation or current of air* over the exterior heated surface." Sci. Am. "We shall *soon* hear of our packet ships going over the Atlantic by the aid of kites at the rate of *a mile a minute*." Herald "…man, *then*, in comparison to those beings, would dwindle into animalculae…how humiliating the thought! And yet how true the possibility!" Herald

Overall, the pieces seem to be structured along a problem/solution line, the problem in many cases being an "ignorance" of some scientific or technological principle, and the solution being a way to improve the average American lifestyle

by application of that principle or technology. Another way to view this rhetorical dynamic is as a narrative of control, where some untamable natural force becomes domesticated through American scientific and technological methods.

Charles Bazerman finds the problem/solution *topos* underlying the structure of the research article as early as 1800 in the Philosophical Transactions of the Royal Society of London, so there is a potential rhetorical inheritance here from the academic article to its popular kin (Bazerman "Reporting" 183). The problem/solution *topos* also operates powerfully today in the research report, in fact, argues John Swales in his close study of the rhetoric of research articles in Genre Analysis: English in Academic and Research Settings (118-119). However, Swales also notices a special link between the problem/solution *topos* and popularization. While specialized, intra-disciplinary reports of scientific research usually exhibit more complex introductions keyed to the particular interests and *topoi* of their disciplines, popularizations of those same findings often reduce these complexities to a problem/solution model in their introductions, since this is a *topos* that appeals more generally to a lay readership interested in what science can do for them (Swales 138,140). Indeed, in this small sample of mid-nineteenth century popular science articles, even abstruse scientific concepts tend to be discussed in terms of a pay-off, whether physical or metaphysical. This is consistent with Jeanne Fahnestock's observations, in her study of the present-day accommodation of science in popular media. She found that the emphasis in popularized accounts of scientific findings still rests on the

"pay-off" of those findings in terms of new knowledge, valuable technology, or an index to a course of social action (291). It bears noting that this problem/solution/"pay-off" pattern is eerily similar to that of the advertisements that pack the pages of all of these papers; a problem (health or otherwise) can be solved cheaply by an amazing scientific solution, at great benefit to the purchaser. Closer examination of this connection is required before we can determine if advertisements in the popular press formed a rhetorical precedent for the popular science article. But the similarities are striking and suggestive.

Narrowing our focus from the global structuring principles of the texts in the sample, a few important local patterns can be discerned. The first lies in the rhetoric of the introductions or opening statements of these science articles. Even in the more staid American Journal of Science articles, the opening rhetorical move is consistently mystery-generating: the words "wonder," "astonishment," "curious," "novel," "surprise" are repeated with uncanny consistency in all of the longer blurbs, educational pieces, and reports of discoveries. The only exceptions to this rule are found in a few of the AJS articles, which imitate the developing Transactions-type experimental reports of this time period in restricting their claims to a specific hypothesis and its proof, a strategy that resists overgeneralization and sensationalism (Bazerman "Reporting" 174,183). The purpose of these popular pieces' inflated introductory rhetoric can surely be chalked up in great measure to the same sort of impulse motivating the all-caps headlines of the science advertisements they share the pages with—attracting and exciting attention. In Selling Science Dorothy Nelkin characterizes the science

journalism of this period as pushing for the "-est": the biggest, coldest, strangest, etc. (1). However, this "mystery" rhetoric possibly ties into other traditions and reader expectations. Jeanne Fahnestock finds this same tendency in 20th century popularizations, and she claims that this pattern finds its way back to Aristotelian theory: "In the *Rhetoric*, Aristotle pointed out the perennial epideictic appeal that 'a thing is greater when it is harder or rarer than other things'" (Fahnestock "Accommodating" 280-281). One of the pillars of Fahnestock's theory about popularization is that it is essentially epideictic, in contrast to the forensic rhetoric of the lab report, because popularizing scientific findings requires "the adjustment of new information to an audience's already held values and assumptions" (278-279). A Jacksonian readership, convinced that America was the "-est" of everything, would certainly have valued epideictic rhetoric touting the originality and novelty of its scientists' ideas.

Interestingly, there is a second implication of the "mystery" opening that corroborates this resonance between popular science reporting and epideictic rhetoric, and that is the frequent move these pieces make to establish their topics as matters of general or, indeed, universal concern. Everyone wonders about this, the articles imply, just as the advertisements do; everyone has worried about this, everyone needs an answer to this question. This move is very similar to one John Swales has identified in the introductions to research articles: arguing for centrality. One of the first moves research scientists often make in their public arguments is to claim that the topic they are working on is of paramount importance to the majority of their field (Swales 144). In light of the epideictic

functions of appeals to mystery, uniqueness, and centrality, it would appear that arguing for centrality or universal concern is an epideictic move to establish the scientist's work solidly within the goals and values of the reading community. The "wonder" openings of the popular science pieces in the sample could function in a similar fashion with their readerships.

The last local-level rhetorical feature visible in the sample is the use of detail to convince the readers of the aptness of the author's solution to the acknowledged gap or lack. The AJS articles are the most detailed, likely due to their greater length and technicality. However, all of the popular science reports, including the blurbs/factoids, give details of functions, principles, and operations as part of their strategy to persuade the reader that their claims are true and valuable. Poe, of course, practically obsessed over this attention to "analogical detail" and "verisimilitude" in his hoaxes, believing these qualities to be the hallmark of scientific writing. His "Balloon-Hoax," in particular, barely stays afloat with its heavy ballast of technical engineering details about Mason's Atlantic-hurdling balloon.

As discussed in Chapter One, both Bazerman's and Shapin's work on the development of the research article indicates that the article evolved to provide a vicarious experience of the experiment for the reader. Rhetoric thus supplanted witness, crucial for empirical science's verification and reproducibility. By the nineteenth century, then, science had embarked on its grand pretense that scientific language was transparent, that what you read was what had happened; indeed, your reading and acceptance of the claims of the research article verified

them (Bazerman Shaping 14). Of course, news reporting cultivated a similar trust in its readers, who could not themselves be in all the places the reporters could be to witness all the discoveries, disasters, and decisions that filled each day everywhere in Jacksonian America. As discussed earlier, political papers even adopted a rhetoric of verbatim transcription of political events that gave the semblance of a virtual experience of direct democracy. All of this "verisimilitude" was likely aimed at giving readers the vicarious experience of governing, a highly desirable experience in a day when Americans were being cultured by Jackson to distrust anyone—the Masons and the Second National Bank included—who wished to separate them from the governance of their nation. Hoaxers like Poe and Locke could not have helped but take advantage of the blind trust that their readers had been taught, through reading science and reading the news, to put in "verisimilitude," in the vicarious witness of the word.

All of these rhetorical moves listed above—the problem/solution/pay-off structure, the "mystery" opening, the dense detail, also the name-dropping of cognoscenti—since they appear fairly consistently throughout the different publications, could be considered expectations readers would hold, unconsciously or consciously, when approaching an article such as Locke's or Poe's hoax. In addition, as already mentioned with respect to the more technical science reports, the reader could expect copious woodblock engravings that illustrated inventions, principles of astronomy or physics, or botanical or zoological specimens. The pages of all of the papers and magazines were rife with them. Elizabeth Tebeaux argues in her study of Renaissance technical manuscripts that illustrations and text

layouts, which helped the reader visualize topic structure, strengthened the perception that the text communicated the structure of reality. This effect of engravings could not help but be useful to the hoaxers, and in fact Poe includes engravings of the balloon *Victoria* and the workings of its propeller in his "Balloon-Hoax" to augment the story's persuasive effect. Another element of lay-out, bold-print headlines augmented the "mystery" openings; both Locke and Poe utilized this strategy to catch readers' attentions. Overall, the effect of these popular science reports was very close to that of the papers' advertisements—sensation, mystery, uniqueness, and immediate practical benefit.

3.5 Summary of reader expectations of popular science news

As discussed in the Methods section in the last chapter, a "reader expectation" is a sort of cognitive constraint on the process of creating meaning during the reading experience. In other words, the expectation functions as an assumption that favors the acceptance of certain interpretations of a text over others in constructing a "world view," which is the sum total of all the beliefs the reader holds about the world.[10] That is why understanding hoaxing is crucial to

[10] In general this belief or "doxastic" is coherent, disallowing contradictory beliefs about a single proposition. See Lehrer (1978) for a discussion of this sort of doxastic systems in epistemology. However, discourse researchers like Lascarides and Asher (1993) have found that discourse interpretation usually involves the acceptance of beliefs into the doxastic system that would be incompatible under a strict interpretation of the logical form of those beliefs. For example, we have no trouble accepting that penguins are birds although they cannot fly, and flight counts as a defining feature of birds. Lascarides and Asher argue that "defeasible" beliefs, beliefs that hold in general but that can be overridden by specific exceptions, allow more realistic modeling of the cognitive process of discourse interpretation and the update of belief systems that accompanies it.

understanding the dynamic between science and literature in nineteenth century American social epistemology: hoaxing bears on the construction (reconstruction, from our standpoint) of the world that readers of that era thought they lived in. Those who believed Locke's hoax inhabited a different epistemic world than those who did not, a world where there were or could be man-bats and moon-bison. The words of Locke's story in the Sun were the only witness to the moon's surface, just as for many readers, words about Japan or the West or politics in Washington D.C. would be their only contact with those parts of the world. It is this nascent power of witness to construct different realities for readers that Poe was beginning to exploit when he wrote "Hans Phaall" and spent so much time studying and worrying about the success of Locke's hoax.

All of the expectations that a reader has for a certain genre of text—popular science writing, in this case—interact to form a filter on all the possible meanings arising from the reading of any exemplar text from that genre. Only the meaning(s) that satisfies the greatest number of the reader's expectations will make it through the holes in the filter, will be allowed to change or "update" her world view. Walter Kintsch's work on the cognitive processes involved in comprehending text supports this kind of constraint-satisfaction model of reading. Kintsch's CI or Construction-Integration model of reading presented in Comprehension: A Paradigm of Cognition (1998), is an extension of the comprehension model he developed with Teun van Dijk in the 1980s. The CI model maintains that all possible meanings of words and phrases are generated as a reader reads a sentence. Then, through a process of "spreading activation" only

those meanings reinforced by the reader's prior reading experience and life experience are strengthened, where meanings irrelevant to the reader's goals and experiences are weakened and eventually die off (Kintsch 95). Kintsch's connectionist model of the reading process, while it provides support for a model of reading as an expectation-satisfaction process, mostly applies at a sub-conscious level and so cannot cope with high-level, conscious decisions about truth-value of a text. Decisions about the truth of a text happen after the reader has already decided on the meanings of words and built a mental model of the text in her head; deciding about truth is deciding to what extent that model will interact with her model of the world. For that reason, the truth-value judgments modeled in this project are strictly *post hoc*. It might be possible to model readers' moment-by-moment evaluation of different aspects of the text during the reading experience, if we were conducting a read-aloud protocol with live subjects. However, the historical reader responses to the hoaxes that we have available to us do not contain those data. They are *post hoc* judgments on the truth-value of the hoaxes, and so this project can only model those judgments.

Below is as complete as possible a list of those expectations that have been recuperated so far from the media contest over Poe's and Locke's hoaxes. Notice that the expectations all have the form of propositions; this is so that a possible interpretation arising from the text (say, "Herschel's telescope really works the way Locke says it does") can be tested for agreement with a particular proposition and either agree with it or violate it. They, along with additional

expectations recuperated through analysis of Twain's and De Quille's hoaxes, are also listed in the Glossary at the end of this dissertation for reference:

Authority: The author or authority figure's previous reputation holds.

Entertainment: Reading of popular science articles is for entertainment, not truth, value.

Foreign: Anything foreign is good and probably true.

Internal Coherence: If a story's claims are logically consistent, it is probably true.

Medium: The previous reputation of the medium holds.

Novelty: New discoveries are highly valued and probably true.

Plausibility: If it seems like it could happen, it probably did.

Popsci: Stories that sound like true science reports probably are. Sub-expectations within this category are as follows:

Long: Longer popular science articles are often given in installments.

Decoration: Popular science reports will often be decorated with bold headlines and woodcuts.

Mystery: Popular science reports often have a "mystery" opening signaled by words like "wonders"

Ignorance: After the opening, popular science reports generally indicate that the public is ignorant of a particular principle/phenomenon.

Wisdom: After the lament for ignorance, popular science reports generally point out a wise person who knows better.

Detail: Popular science articles will often have a lot of technical detail, which is a good indicator of truth.

Analogy: The details in a popular science article will often be explained with analogy to well-known phenomena.

Use: Popular science articles often finish with an evaluation of the benefit, physical or metaphysical, of the scientific principle/phenomenon.

Sensation: Sensational elements in a story have a high literary and truth-value.

Some expectations are clearly more powerful than others, because for all readers, certain assumptions override others. For example, in the media debate over the "Moon Hoax," the NY Sunday News deferred its own judgment about the illogicality of Locke's report to Herschel's authority, whenever the astronomer could be reached for comment. Poe weighted some of his own criteria for a successful hoax over others, a ranking impossible to observe in the extraction of criteria given above. However, comments in all versions of his essay about the competition of his hoax with Locke's hoax indicate that Poe ranked four of the criteria (the Novelty, Sensation, Presentation, and Verisimilitude criteria from Table 4) in order of the strength of their impact on readers:

> The singular blunders to which I have referred being properly understood, we shall have all the better reason for wonder at the prodigious success of the hoax. Not one person in ten discredited it, and (strangest point of all!) the doubters were chiefly those who doubted without being able to say why — the ignorant, those uninformed in astronomy, people who would not believe because the thing was so novel, so entirely "out of the usual way." A grave professor of mathematics in a Virginian college told me seriously that he had no doubt of the truth of the whole affair! The great effect wrought upon the public mind is referable, *first*, to the *novelty* of the idea; *secondly*, to the *fancy-exciting and reason-repressing character* of the alleged discoveries; *thirdly*, to the consummate *tact* with which the deception was brought forth; *fourthly*, to the exquisite *vraisemblance of the narration.* (Poe Literati: Richard Adams Locke 161 [emphasis is mine])

Poe feels overall that when it came to weighing the scientific inaccuracies of Locke's story against the novelty of moon-bison and man-bats, people allowed themselves to be swayed by the novel and sensational. Competitions like this between readerly expectations only emerge in the face of a particular interpretive question such as, "Are the moon-bison real?" So, the following is a graphic representation in Optimality Theory of a possible "filter" that a reader of the moon story would have had when faced with deciding on its truth-value. The reader in Table 10 ranks his/her expectations as Poe projects:

Table 10: Graph of decision about truth-value of Locke's moon bison*

	Novelty	Sensation	Popsci.	Plausibility	Internal Coh.
✓TRUE				********	*
FALSE	*	*	*!		

This table is simply another way of expressing Poe's argument. Poe claimed readers who believed Locke's hoax ranked novelty, sensation, and "verisimilitude" (the story's resemblance to a real science report) over no fewer than nine math errors and one internal inconsistency (Locke equivocated on the focusing power of the telescope). The solid vertical line locates the competition—between first impressions and factuality, essentially. The dotted lines denote a lack of evidence for competition in this particular decision about the truth of the hoaxes: i.e., Novelty, Sensation and Popsci. ("verisimilitude"), since they are separated by dotted lines, are equally ranked in this reader's estimation; thus, these expectations "work together" rather than compete with each other as the reader reads.

In the graph the nine factual errors in Locke's story are counted with nine asterisks representing eight violations of Plausibility and one of Internal Coherence. This, of course, assumes that the average reader recognized all nine

* In general in this notation, which is an inheritance from Optimality Theory as described in Methods, where there is a competition between two constraints (for example, authority vs. logic) a solid line appears between them. Where there is no competition, either because the constraints do not interact with each other or because we do not have enough data to determine if they compete with each other, there is a dotted line between them. An asterisk indicates a violation of a particular expectation under a certain interpretation, and an exclamation mark indicates a fatal violation that ends the game and decides a winning interpretation, which is indicated by a check mark.

errors, which was indeed the assumption Poe was making in the passage from his Literati essay just above. In spite of all the faulty evidence, Poe's projected reader believes Locke's story to be true simply because to consider it false would force the admission that something novel, sensational, and "verisimilar" is not true; in this reader's world-view, the correlation between spectacular first impressions and truth cannot bear violation. The exclamation point on the chart indicates that all violations at this highest level of expectation are unacceptable (the convention is to mark unacceptability on the very first violation that renders the candidate interpretation unacceptable, and this is usually the weakest or right-most violation on a given level, as expectation strength increases from right to left). Thus, the candidate with more total violations actually wins in this case because of the very low value assigned to scientific accuracy by the reader. This accurately represents Poe's complaint about Locke's readers' values. Now, a table of Poe's personal reading of the story would be almost exactly the reverse of the one above, with his precious "analogical truth" in the form of plausibility and consistency ranked very firmly over novelty, sensation, and "verisimilitude."

The number of interpretive "games" or decisions that could be played with these expectations is potentially infinite; as Barthes rightly comments, the text is "always open" and produces new meanings with each reading and with each reader. Some of the games we could play with Locke's hoax would bring other pairs of expectations into competition with each other. As already mentioned, the New York Sunday News ranked Authority over Plausibility in its interpretive game. Entertainment is a particularly interesting constraint, because when it is in

operation as an expectation, it forecloses on games about truth-value. Entertainment would be the highest-ranked expectation for those readers who read Locke's story for pleasure, enjoying its colorful images and turns of language, but who did not care if the details of the story were real or not. In terms of the discussion above about the psychological bases of reading fiction, these Entertainment readers would "decouple" the meanings arising from their reading of Locke's story from their world-view. So, Entertainment actually deactivates truth-value expectations like Authority and Plausibility. Entertainment readers are engaged in a reading game a great deal more like fiction reading than news reading. This issue will be addressed below in an examination of the reading of Poe's hoaxes as news compared to their later interpretation as science fiction.

Another worthwhile observation about these reading expectations is that they were employed both by Poe and Locke and by the readers of the hoaxes, because writing hoaxes is itself a game in reading readers and guessing their expectations. For instance, Locke and his editors knew scientific detail was crucial for floating their hoax, but they did not wish to bog down the sensational elements of the story in formulas, so they claim to have cut out a lot of the math for the general reader. This shows that in their writing strategy (which is also a game in reading their readers), Sensation was ranked over Detail.

What we have collected now is a set of expectations—some of which interact and compete with each other, and some of which foreclose on others—that we can use as a filter through which to view the rest of Poe's hoaxing attempts. These expectations may illuminate which of the readers' values were at

stake in the writing and interpretation of the hoaxes, and they may help explain the success or failure of the hoaxes with those readers. Once we have a clearer view of these questions, then we can finally turn to the question of what kind of game Poe was playing with his readership in these hoaxes, and why.

4. THE "BALLOON-HOAX"

Poe's next attempt at a hoax was on April 13, 1844, when an "Extra" to the regular Saturday edition of the New York Sun trumpeted the following in "magnificent capitals":

> [Astounding News by Express, via Norfolk!—The Atlantic Crossed in Three Days! Signal Triumph of Mr. Monck Mason's Flying Machine!--- Arrival at Sullivan's Island, near Charleston, S.C., of Mr. Mason, Mr. Robert Holland, Mr. Henson, Mr. Harrison Ainsworth, and four others, in the Steering Balloon, "Victoria," after a Passage of Seventy-five Hours from Land to Land! Full Particulars of the Voyage!….] (Poe "Balloon-Hoax" 496)

The original article continues, "The great problem is at length solved! The air, as well as the earth and the ocean, has been subdued by science, and will become a common and convenient highway for mankind."

Certainly, this opening must have satisfied readers' demands for novelty and sensation, as aeronautics were a hot topic in the popular scientific and technical articles of the late 1830s and early 1840s. British Balloonist Monck Mason had recently published a memoir of his crossing of the English Channel in

a balloon, and there was high anticipation that Mason would soon attempt something longer.

However, more significantly, Poe had worked harder on the rhetoric of his piece. Almost immediately apparent are several ways in which Poe has crafted the language of his new hoax to better match reader expectations: First, the tone of the opening, with its exclamation marks and use of adjectives like "astounding," is completely in keeping with the Mystery introductions of other science articles. The "bantering" tone of "Hans Phaall" is gone, replaced by a serious, if sensational, journalistic style. Also, notice that Poe immediately invokes the problem/solution paradigm current in the popular science reporting of the day with the sentence "The great problem is at length solved!".

The article goes on to imitate the Ignorance phase of the problem/solution *topos* by detailing past failures in aeronautical experiments. To satisfy reader expectations about Wisdom, Poe then name-drops the famed appellations of balloonist Monck Mason, whose diaries Poe copies for large sections of his report (Franklin Future 94), and of popular British historical romance writer Harrison Ainsworth. After that, the mechanical Details of the balloons construction are focused on to minute extremes, and a Decorative woodcut of the wedge-spiral propeller of the balloon is included. The account ends true to the reader's Use expectations with an overblown assessment of the importance of the voyage and the speculation, "What magnificent events may ensue, it would be useless now to think of determining" (Poe "Balloon-Hoax" 505).

Did readers respond better to this hoax that seemingly conformed better to their expectations of how a true science report should read? The short answer is yes, but complicating it is the fact that the only extant eyewitness to the reaction to the hoax is Poe himself, who undoubtedly exaggerates it in his 21 May 1844 letter for the Columbia Spy:

> The 'Balloon-Hoax' made a far more intense sensation than anything of that character since the "Moon-Story" of Locke. On the morning (Saturday) of its announcement, the whole square surrounding the "Sun" building was literally besieged, blocked up--ingress and egress being alike impossible, from a period soon after sunrise until about two o'clock P. M. (Mabbott 33)

The Sun did indeed sell a record number of copies of the Saturday extra containing the hoax, 50,000 according to the estimate in the Philadelphia Saturday Courier (Thomas 461), and so Poe's jubilation is perhaps founded in reality. He admits that "of course there was great discrepancy of opinion as regards the authenticity of the story; but I observed that the more intelligent believed, while the rabble, for the most part, rejected the whole with disdain" (Mabbott 33). This is the same argument, curiously, that he made about Locke's hoax, but in this case he is using it to aggrandize his intelligence and the craftsmanship he invested in the scientific detail of this hoax. "As for internal evidence of falsehood, there is, positively, *none*--while the more generally accredited fable of Locke would not bear even momentary examination by the scientific. There is nothing put forth in the Balloon-Story which is not in keeping with the known facts of aeronautic

experience--which might not really have occurred" (Mabbott 33). Poe claims further that he listened in on people's discussions of the Extra, and the only quibbles he heard with the story were on account of the reputation of the Sun, since it had published the "Moon Hoax," and the difficulty of having gotten news from Charleston so quickly. Indeed, the editors of the New York American record this criticism of the story's plausibility: "The express, which has hardly outstripped the ordinary mail, must also have brought along a woodcut of the balloon, as the Sun has the picture as well as the story—one as good as the other" (Thomas 458). These doubts on the part of readers correspond to the Medium and Plausibility expectations and, depending on their strength with particular readers, might well have had the effect Poe reports. Table 11 presents the "filter" of expectations of readers like the editors of the New York American who disbelieved the "Balloon-Hoax" on the basis of Medium and Plausibility.

Table 11: Decision about the truth-value of Poe's "Balloon-Hoax" by readers valuing plausibility and the reputation of the news medium

	Medium	Plausibility	Popsci.
TRUE	*	*!	
✓FALSE			*

For these readers, the fatal violations were of Medium and Plausibility, equally ranked over Popsci., or the story's "verisimilitude" in conforming to reader expectations of a popular science article. Even though denying the truth of the article meant negating the article's convincingly-constructed scientific rhetoric, the Sun's tarnished reputation and readers' background knowledge of the difficulty of getting mail so quickly from Charleston sway readers' decisions.

The "Balloon-Hoax" did not have the life of the "Moon Hoax," however, and that is because Poe revealed himself as the perpetrator that afternoon. An acquaintance of Poe, New York journalist and "free love" advocate Thomas Low Nichols, wrote in his autobiography that Poe got drunk on wine and stood on the steps of the Sun building the very afternoon of the hoax's debut, shouting out to potential buyers of the Extra that it was a fake (Falk 48). A corroborating bit of evidence is that the Sun printed a retraction for the hoax two days after its publication, an admission that it had stubbornly refused to stoop to in the case of the "Moon Hoax" (Falk 49). By this account, Poe witnessed the run-away success of his hoax and could not bear for its readers not to know that he was its creator. At most that admission cost him a day or two of entertainment, because the mails from Charleston almost certainly would have arrived on Monday or Tuesday, shutting the hoax down. Locke's hoax had benefited from a much longer window of play before Herschel could be reached for comment.

Two dynamics within the "Balloon-Hoax" event deserve special consideration. First, Poe used it as a stage to construct himself publicly as a notorious expert; secondly, as Poe constructed his phantom balloon, he also developed a textual mechanics that came to characterize his detective and science fiction.

4.1 Professionalism, Expertise, and Hoaxing

The image of Poe gloating triumphantly over newsreaders gawking up at him with his hoax still open in their hands—this is a pose worth investigating. For one of the many rhetorical functions of a hoax is the public notoriety it

constructs for its creator. Poe's willingness to step into that role on the front steps of the Sun suggests that it may have been a powerfully motivating factor in encouraging him to continue attempts at hoaxing. Scrupulously hiding his identity as a hoaxer, as did Locke, was not for Poe. Poe wished to be publicly recognized as a writer whose scientific expertise enabled him to beat scientists at their own game and to construct "discoveries" for the public that they could not tell from the real thing. Because of this motivating force, Poe's hoaxing is bound up with the history of professionalism and the construction of public expertise in America.

As mentioned above, Poe grumbled about the difficulty of making a living as a professional author and editor while scientists prospered. Although Poe chalks up this inequity to deficiencies in public taste—and so uses hoaxes to embarrass his readers for these deficiencies—the truth is that a whole complex of historical and economic factors had made it possible for both Poe and the scientists he resented to make their livings as professionals. William Charvat, in his study of the profession of authorship in America, says the most common definition of professionalism is getting paid to do something. As a corrective to this truism, he notes that even before James Fenimore Cooper became the first financially successful author in American history, writers like Susanna Rowson and Joel Barlow could be counted professionals even in the absence of economic success because they publicly claimed the vocation of an author (28). Their *ethos* as professional writers, by this account, qualifies them as much as or more than their account ledgers.

The expansion of the publishing industry in the 1820s finally created an economic niche to match the rhetorical claim-staking of professional authors like Cooper. At the same time, as discussed in Chapter One, rapid industrialization created similar economic niches for scientists and engineers as professionals. While the term "professional" might constitute their economic identity, the term "expert" described their social and epistemological identity. These experts embodied the ways in which abstruse fields of study like electromagnetics, physics, and chemistry were becoming assimilated into the human social system; they personified the taming of nature. As such, they served as oracles through which the lay public could interrogate the natural world.

But this culture of expertise did not develop without resistance. The mistrust of elitism that characterized Jacksonian politics derived in part from a deep public discomfort with second-hand access to crucial knowledge and a suspicion of private agendas on the part of the professionals who dispensed it. Theodore Porter, in Trust in Numbers, marks these factors as signal for the development of a culture of objectivity. Porter defines objectivity as "technologies of trust" in place of personal trust. Measurements, standards, and rules, also enabled by an industrial urbanized economy, allowed lay people to determine the extent of their assets and experiences for themselves without the questionable intervention of experts. In these ways, a culture of objectivity grew up and stood opposed to the culture of expertise (202-203).

Poe's "Balloon-Hoax" fed directly off these tensions between objectivity and expertise in his culture and allowed him to construct himself as a notorious

(read, counter-cultural) public expert. By publicly revealing his hoax he demonstrated that the objective "rules" his readers had used to determine the truth of his science report for themselves had let them down. His public humiliation of them formed an implicit argument that they could not trust themselves to understand science, and they could not even trust scientists, since Poe had clearly bested them at their own game. Poe and his imaginative artistic colleagues alone were qualified as experts in social truth. If readers wanted the truth, they would have to go through professional artists like him. By this chain of implications, Poe's hoax struck against Baconian empiricism and objectivity and for the culture of expertise, with himself at the center of it. In the next chapters, we will see this function of hoaxing reasserting itself as a motivation for the hoaxes of Mark Twain, Dan De Quille, and Alan Sokal.

4.2 Textual mechanics

Another striking element of the "Balloon-Hoax," and of "Hans Phaall" as well, is Poe's almost obsessive attention to mechanics—mechanics of the machines in the story, mechanics of the story itself. In both hoaxes mechanism fairly overwhelms the plot; one could argue the details about the balloons *are* the plot. With the "Balloon-Hoax," however, the very rhetoric of Poe's hoaxing is becoming mechanical. In 1836 he had laboriously detailed and exposed Maelzel's Chess-Playing Automaton as a fake; the gears and cogs in the cabinet were merely a front for a chess expert who, from his cramped position, manipulated the automaton's arm via levers to move the pieces. Poe was actually practicing his own brand of legerdemain in this exposé, as he lifted most of it

directly from magician David Brewster (Pollin 14). Writing hoaxes seems to be an extension of this engineering rhetoric. With each new attempt (including Locke's), Poe tests the rhetorical impact of these "*jeux d'esprit*" on the reader, tweaks an appeal here, adjusts the tone there. He even comes to construct his hoaxes by a method of salvage by recycling, in the case of the Balloon-Hoax, whole parts of Monck Mason's Account of a Late Aeronautical Expedition from London to Weilberg as well as a contemporary science report "Remarks on the Ellipsoidal Balloon propelled by the Archimedean Screw, described as the New Aerial Machine" (Franklin Future 94). Poe's prose in these hoaxes builds flying machines. His hoaxes *are* flying machines, after a fashion. Contemporary William Griggs appraised Locke's hoax as a mere "balloon" that was mistaken for a while for a "celestial luminary" (Locke Celebrated "Moon Story" 21). Poe's hoaxes answer these charges to the letter. In constructing the *Victoria*, Poe makes his readers move with him, a step at a time, through the building and piloting of the balloon and thus makes them co-engineers in his hoaxes. Here is the painstaking detail with which Poe describes the principle means of locomotion for the *Victoria*, the Archimedean screw:

> The *screw* consists of an *axis* of hollow brass tube, eighteen inches in length, through which, upon a semi-spiral inclined at fifteen degrees, pass a series of steel wire *radii*, two feet long, and thus projecting a foot on either side. These *radii* are connected at the outer extremities by two bands of flattened wire — the *whole* in this manner forming the framework of the *screw*, which is completed by a covering of oiled silk cut

> into gores, and tightened so as to present a tolerably uniform surface. At each end of its *axis* this *screw* is supported by pillars of hollow brass *tube* descending from the hoop. In the lower ends of these *tubes* are holes in which the pivots of the *axis* revolve. From the end of the *axis* which is next the *car*, proceeds a shaft of steel, connecting the *screw* with the pinion of a piece of *spring* machinery fixed in the *car*. By the operation of this *spring*, the *screw* is made to revolve with great rapidity, communicating a progressive motion to the *whole*. (Poe, "Balloon-Hoax," 497-498 [emphasis mine])

This lengthy schematic is approximately one-eighth of the total amount of technical description in the story. I have highlighted certain words in the passage that are repeated, and by focusing on them, we can appreciate some of Poe's rhetorical mechanics. First, the screw is constructed as a unit. Poe uses the word "whole" to alert the reader that what they have read to that point completes the construction of the screw proper. The second mention of the "whole" at the end of the passage, refers to the balloon and tells the reader how the screw fits and functions as a part of the balloon. In finer detail, the screw is constructed rhetorically a step at a time, with each component fitting into the next until the function of the entire screw in context is apparent. The words "screw," "axis," "radii," "tube," "spring," and "car" are repeated, and their repetitions are layered in with each other such that each piece of the screw leads the reader to the next piece in the assembly. The screw is literally constructed and put into play before the reader's eyes. Poe's readers are reading an engineering schematic. Recall,

too, that this story was accompanied by an engraving of the Archimedean screw, so at each stage in the construction the reader could compare her mental model of what she had constructed so far to the graphic.

Poe's casting of the reader as co-engineer is not insignificant. Not only does the reader mentally construct a balloon as she reads, she also constructs the hoax, because the balloon—its very existence, its successful functioning—*is* the hoax. Notice Poe's use of the verb "communicate" to describe the energy transfer in the *Victoria*'s propeller. Both the balloon and the text are performing the same function—implicating the reader in pulling the wool over her own eyes, as by the time she is done reading, she can see nothing but the gears, shafts, and pinions spinning in the text, cleverly hiding, while also mechanically accomplishing, Poe's real agenda. Poe is practicing a mechanics of rhetoric with these hoaxes that will in Eureka, influence his very conception of how reality works.

5. "THE FACTS IN THE CASE OF M. VALDEMAR"

In the December 1845 edition of The American Review: A Whig Journal, subscribers read "The Facts in the Case of M. Valdemar" by Edgar A. Poe, which began as follows:

> Of course I shall not pretend to consider it any matter for wonder, that the extraordinary case of M. Valdemar has excited discussion. It would have been a miracle had it not—especially under the circumstances. Through the desire of all parties concerned to keep the affair from the public, at least for the present, or until we had farther opportunities for investigation—through our endeavors to effect this—a garbled or

> exaggerated account made its way into society, and became the source of many unpleasant misrepresentations, and, very naturally, of a great deal of disbelief.
>
> It is now rendered necessary that I give the facts—as far as I comprehend them myself. They are, succinctly, these: [Poe, 1845 #30 561]

Roland Barthes has done a close reading of the language Poe uses in this piece, and in the opening, Barthes finds two "codes" operating (codes are complex constraints on interpretations similar to the "filters" of reading expectations we have been examining): the code of the enigma, and the code of science (Barthes 87-89).

The enigma code, as Barthes describes it, is very similar to the requirements for the Mystery expectation. An enigma operates by lack—astonishment, wonder, ignorance. Barthes points to the linguistic cue of the definite article "the" introducing "the extraordinary case" and "the affair"; the definite article registers a linguistic presupposition that the case/affair exists in the world of Poe's readers and that they should be aware of it. "The facts" and "the circumstances" presuppose an enigma or misunderstanding that will now be cleared up.

The noun phrase "the facts" also invokes the code of science, through which, according to Barthes, scientists try to position their endeavors outside the realm of literature. The code of science is a concentrated attempt by scientists writing science to supplant symbols—and, indeed, all symbolic construction of

meaning where one thing stands for another—with "facts" which simply are and communicate truth immediately. Of course, Barthes would probably be the first to agree that science has its own symbols, but his point here is that Poe uses language in the opening of "M. Valdemar" the way that scientists use language in order to convince his readers to put their trust in his eyewitness account of the "extraordinary case." The enigma code and the scientific code are in competition with each other throughout this story, inasmuch as enigmas disguise truth behind symbols or clues, while science seeks to channel truth asymbolically through facts, according to Barthes.

Poe's story continues past this enigmatic opening to detail a case of mesmeric suspended animation, in which the dying M. Valdemar is hypnotized at the point of death. When he is taken out of the trance state, months later, he immediately decomposes in his bed, having been in fact dead the entire time. Poe discusses Valdemar's medical condition prior to his death in great scientific detail and lists the names of several important doctors attending the case but excises all but the first letters of their names: Dr. D____, Dr. L____, etc. This device is an interesting variant of the name-dropping that is characteristic of the Wisdom and Authority expectations from popular science writings. This elision possibly derives from eighteenth and nineteenth-century novels of social critique and exposé such as Laurence Sterne's Sentimental Journey. The design of the convention is to convince readers that this case is so sensational and extraordinary that the famous people involved (doctors, in this case) wish their involvement in it to be kept private in order to insulate their public reputations. Poe refers to

Valdemar himself as “well-known” as a translator of various famous European works and provides a list of phony credentials.

The Popsci. expectation is met in this story because the language of Poe’s account of the mesmerism itself matches very closely the medical case studies at this time, particularly mesmeric case studies which include dialogue with the mesmerized subject. It is likely that Poe consulted several sources in giving Valdemar an authentic rhetorical feel, particularly a reprint of the Rev. Gibson Smith’s pamphlet “Lectures on Clairmativeness, of Human Magnetism” featuring the work of clairvoyant Andrew Jackson Davis (Carter 36).

The story was believed widely and reprinted copiously in England, even in the London Times (Poe Letters Vol. 2 319). Elizabeth B. Barrett herself wrote to Poe exclaiming that the story was “throwing us all into ‘most admired disorder,’ and dreadful doubts as to whether ‘it can be true,’ as the children say of ghost stories.” Poe’s responses to the mesmerists who wrote to him asking for confirmation of the account’s truth are strangely cagey equivocations, rather than gloating denials. Poe wrote the following to Arch Ramsay in Stonehaven, Scotland, in response to a query about “M. Valdemar’s” authenticity:

> “Hoax” is precisely the word suited to M. Valdemar's case. The story appeared originally in "The American Review", a Monthly Magazine, published in this city. The London papers, commencing with the "Morning Post" and the "Popular Record of Science", took up the theme. The article was generally copied in England and is now circulating

in France. Some few persons believe it—but I do not—and don't you. (Poe Letters Vol. 2 337)

Poe curiously adopts the stance not of an author but of a bystander lacking the authority to pronounce definitively on the truth of the hoax when he writes, "Some few persons believe it—but I do not—and don't you."

Whether Poe actually intended "M. Valdemar" as a hoax when he wrote it is unclear. He claims he did not, in a letter to Evert Duykinck in 1848. However, it is quite possible Poe was continuing his deliberate tinkering with the expectations of his reading public with this tale. It certainly seems that way, given that he re-performed all of the Popsci. reader expectations performed in the "Balloon-Hoax." In addition, Poe satisfies the Sensation and Novelty expectations in spades because the effect of Valdemar speaking from the dead and rotting away in front of the reader was very unusual for a staid political journal like the Whig Review. Also, as Barrett testifies, Poe chooses for this tale a topic just as brimming with novelty as aviation—mesmerism.

As Barthes points out in one of the rare "crossings" of history into his analysis, 1845 was perhaps the height of the madness and "scientific illusion" concerning mesmerism (called magnetism in Europe) (Barthes 89). This is one of the many ways in which we are hampered in our readings of Poe's hoaxes. While to us hypnotism and mesmerism are the last things we would call hard science, the situation was markedly different in Poe's time, when painless births and surgeries were allegedly being performed under hypnosis (Barthes 92). As mentioned earlier, articles on mesmerism appeared as late as 1840 in respected

science journals like Silliman's American Journal of Science. Poe's hoax was launched into a perfect opening, again, created by intense public desire to know more of a scientific world that the lay reader had scant access to, a desire to which mesmerism was also responding as a lay-practiced "scientific" profession.

In spite of all this evidence for deliberate design, it is just as likely, however, that in "M. Valdemar" Poe may have been experimenting with mesmerism in fiction along the vein of his detective stories, since he demystifies the enigma of M. Valdemar's case step-by-step much as he does with Dupin's mysteries. Poe may have inadvertently created a hoax through his publication of the story in a magazine known for news reporting as well as fiction, through his adherence to a style of writing consistent with science writing in general and medical case studies in particular, through his pretense of name-dropping, and through his fortunate exploitation of an issue at the forefront of public consciousness—the validity of mesmerism. This second explanation accounts equally well for Poe's ambivalent reactions to readers' requests for verification.

The telling clue in this dilemma is Poe's reaction to readers' responses. Once Poe realized he had fooled some of "M. Valdemar's" readers, he decided to own the hoax and capitalize on its publicity. This reaction is a piece to our puzzle of author intentionality in hoaxing, a piece that would not be available to us in a strictly text-based analysis of the genre. "M. Valdemar" counts as a hoax because *readers* constructed it as such and Poe owned that construction. Whether he intended to make a hoax when he wrote the story is irrelevant. Since the hoax is not a text, but time-and-space-bound exchange with readers, Poe had many

opportunities over the months of debate surrounding the story to construct himself as a hoaxer, and he indeed did. Therefore, "M. Valdemar" counts as a hoax. Even putting the vexed question of author intentionality aside, "M. Valdemar" still adhered to Popsci. expectations and appeared in a journal carrying news, so readers still had to decide on its truth-value. For the purposes of our project, it is that interpretive decision that makes "M. Valdemar" worthwhile as a site to examine the interaction of reading expectations about science news.

There is a fascinating dynamic operating in "M. Valdemar" that may help explain its complex effect on readers and that can only be explained in terms of readerly expectations. Barthes attributes the appeal of "M. Valdemar" to its "undecidability," to the fact that Poe invokes several competing codes simultaneously with his language in the tale—as when he invokes the enigma code and the scientific code, for example, with the phrase "the facts" but does not give the reader enough information to "chose which is 'true,'" the mystery story or the scientific report on mesmerism (Barthes 96). The story's adherence to Popsci. expectations invokes the code of science. But the enigma code, with its presupposition of mystery, with its elided names and ejaculations of disbelief, constructs a puzzle instead of truth. We have not witnessed the enigma code in operation in popular science writing outside of the Mystery expectation for introductions; it is a code that perhaps belongs more properly to genres like folk tales, ghost stories, and mystical religious rhetoric.

This confusion of two "filters" of reading expectations may explain why Poe reported receiving so many questions about the truth of the tale. His story,

strung stylistically between two genres, disabled many readers from making even a provisional decision for themselves about its truth-value. Through the invocation of two conflicting codes or "filters" of reader expectations—one applicable to reports of scientific fact, and the other employed in the reading/hearing of mysteries and "ghost stories" in Elizabeth Barrett's words—Poe gave his readers a truly troubling reading experience. Poe was known for generic innovation. The craze over mesmerism in 1845 afforded him a chance to play with the curious blend of epistemologies it represented—scientific and mystical—in order to destabilize both readers' perceptions of reality and of generic convention.

6. "VON KEMPELEN AND HIS DISCOVERY"

Poe's last hoax, published just months before he died, was the most calculated and highly engineered of his hoaxing attempts. The story purported to be a more personal follow-up to a series of other "scientific" reports already published in the American media about an incredible discovery by German alchemist, Von Kempelen. A lengthy preamble discussed and disparaged many of these other accounts, saying of one that it had a very "moon-hoax-y air" (606). Then, still without announcing what exactly the amazing discovery was, Poe claimed that famous chemist Sir Humphrey Davy had reported coming very close to making the same discovery in his "Diary"; an editorial comment immediately interjected that, lacking "the algebraic signs necessary, and as the 'Diary' is to be found at the Athenaeum Library, we omit here a small portion of Mr. Poe's manuscript.-ED" (606).

Poe went on to link Von Kempelen with the Maelzel family, the creators of the famous chess-playing automaton which magician David Brewster and then Poe himself debunked. Von Kempelen's supposed reputation in the American media as a misanthrope was next raised and dismissed, and then, finally, nine long paragraphs into the account, Poe reported Von Kempelen's attempts to keep his discovery secret and the subsequent raiding of his Bremen flat by police to reveal that he had changed a trunk full of lead into "gold, in fact, absolutely pure, virgin, without the slightest appreciable alloy!"(610). The account finished with the news that the price of gold was plummeting in Europe and would soon do the same in America, as a result of Von Kempelen's discovery.

Poe ostensibly wrote the hoax to take the shine off the gold rush of 1849, or so he claimed in his letter to Evert A. Duykinck of 8 March 1849, where he attempted unsuccessfully to convince Duykinck to publish "Von Kempelen" in his journal the Literary World:

> Dear Sir,
>
> If you have looked over the Von Kempelen article which I left with your brother, you will have fully perceived its drift. I mean it as a kind of "exercise", or experiment, in the plausible or verisimilar style. Of course, there is *not one* word of truth in it from beginning to end. I thought that such a style, applied to the gold-excitement, could not fail of effect. My sincere opinion is that nine persons out of ten (even among the best-informed) will *believe* the quiz (provided the design does not leak out before publication) and that thus, acting as a sudden, although of course a

very temporary, *check* to the gold-fever, it will create a *stir* to some purpose.

I had prepared the hoax for a Boston weekly called "The Flag"--where it will be quite thrown away. The proprietor will give me $15 for it on presentation to his agent here; and [page 2:] my object in referring the article to you is simply to see if you could not venture to take it for the "World". If so, I am willing to take for it $10-- or, in fact, whatever you think you can afford.

I believe the quiz is the first deliberate literary attempt of the kind on record. In the story of Mrs Veal, we are permitted, now & then, to perceive a tone of *banter*. In "Robinson Crusoe" the design was far more to please, or excite, than to deceive by verisimilitude, in which particular merely, Sir Ed. Seaward's narrative is the more skilful book. In my "Valdemar Case" (which *was* credited by many) I had not the slightest idea that any person should credit it as any thing more than a "Magazine-paper"--but here the whole strength is laid out in verisimilitude.

I am *very* much obliged to you for your reprint of "Ulalume".

Truly Yours,

Edgar A Poe.

[page 3:] P.S. If you feel the least *shy* about the article, make no hesitation in returning it, of course:--for I willingly admit that it is not a paper which every editor would like to "take the responsibility', of printing--although

> merely as a contribution with a known name:--but if you decline the quiz, please *do not let out the secret*.

Poe's references to Mrs. Veal and Crusoe were to Daniel Defoe's literary adventure hoaxes, and "Seaward's Narrative" was a diary forged by Jane Porter published in London in 1831 (Poe Letters Vol. 2 434).

Bernard Pollin takes Poe's high expectations for his last hoax seriously based on the success of "M. Valdemar" (Pollin 13); however, the claim that he could cure Americans of their gold fever might rather have been a ruse to entice Duykinck to publish the story. Daniel Hoffman argues that Poe's hoaxing was never aimed at "show[ing] men how to amend their ways," but rather in "display[ing] the follies of mankind--and the personal superiority of the Artist-Genius to the generality of fools" (192).

"Von Kempelen" was sold to The Flag of Our Union in Boston after Duykinck turned it down, where it appeared on 14 April 1849. From the beginning, the story stumbles over dropped names and borrowed authority:

> After the very minute and elaborate paper by Arago, to say nothing of the summary in *Silliman's Journal*, with the detailed statement just published by Lieutenant Maury, it will not be supposed, of course, that in offering a few hurried remarks in reference to Von Kempelen's discovery, I have any design to look at the subject from a *scientific* point of view (Poe "Von Kempelen" 605-606).

Dominique Arago was a renowned French physicist, head of the *Observatoire de Paris* at the time of Poe's hoax; interestingly, Arago had been

one of the first European scientists to publicly denounce Locke's "Moon Hoax" in 1835 on behalf of his friend Sir John Herschel. Silliman's Journal, a.k.a the American Journal of Science, has already been discussed in some detail, and Lieutenant Maury was referred to briefly; he was a Navy engineer responsible for great improvements in American navigation before the Civil War. Curiously, he was also at the helm of the Southern Literary Messenger for a few years in the 1840s after Poe had left the paper.

Poe seems bent on fulfilling his readers' Authority and Wisdom expectations in this hoax, along with his usual obsession with detail. He lifts whole sections of chemist Sir Humphrey Davy's memoirs, and claims reports of Von Kempelen's discovery and personality have already appeared in no fewer than three major papers of the time, the Courier and Enquirer, the Home Journal, and Duykinck's Literary World. The details from Davy's diary, which would ostensibly satisfy readers' Detail expectation, are in fact abstracted, fragmentary, and would likely have seemed nearly impenetrable and distracting to Poe's readers:

> But to return to the "Diary" of Sir Humphrey Davy. This pamphlet was not designed for the public eye…. At page 13, for example, near the middle, we read, in reference to his researches about the protoxide of azote; "In less than half a minute the respiration being continued, diminished gradually and were succeeded by analogous to gentle pressure on all the muscles." (607)

The story is chock full of these sorts of "samplings" of institutions, journals, or individuals Poe must have felt his reader would recognize and place confidence in. He sticks tight to the Foreign expectation by using Von Kempelen's name and nationality to tap into the superior reputation of German science (Bruce 26). To conform to his readers' Sensation expectation, Poe winds his story up with the sensational police raid of Von Kempelen's flat and the report of the plummeting gold market in Europe. The sagging markets, in fact, appeal to the Use expectation by showing readers the immediate pay-off (although negative) of Von Kempelen's discovery.

Thus, on the surface, "Von Kempelen" appears to meet most of the expectations identified in this project, with the exception of Popsci. sub-expectations Long (since no further news was promised), Decoration (decorative woodcuts) and Analogy (explanation of phenomenon with reference to "real-life" experiences); however, these expectations are somewhat marginal compared to the high-ranked constraints of Sensation, Medium, and Authority. All of these central expectations "Von Kempelen" apparently satisfied. And The Flag of Our Union did report science news and political news, so Poe's hoax had a fair chance at being bolstered by its readers' Medium expectations. We would therefore expect the hoax to have been very successful with its readers.

In fact, however, there is no recorded reaction to "Von Kempelen" whatsoever, and while Poe biographer Arthur Hobson Quinn claims that the hoax was one of the most "successful attempts of Poe to imitate a science report" (Quinn 596), other scholars seem to agree that "Von Kempelen" did not make

anything like the stir Poe had intended. There could be many reasons for this, some of which may simply be due to poor recording: issues of the Flag of our Union for several years surrounding 1849 are missing, and Poe does not discuss the story in his letters. He wrote few letters, anyway, between April and his death six months later in October, and they were mostly frantic pleas for money and comfort. "Von Kempelen" was simply not a priority with him at that time.

However, assuming that we have all the reception data we need, and therefore that the public simply failed to fall for "Von Kempelen," can the reader expectations we have collected help explain the failure of Poe's final, and most deliberately crafted, hoax? In fact, given the lack of reception information, the common reader expectations we have collected throughout an examination of Poe's and Locke's hoaxes so far are the only chance we have to explain "Von Kempelen's" failure.

A few simple observations suggest themselves immediately. The Authority expectation states that the previous reputation of the author holds, and Poe's readers would, by 1849, associate him with the "Balloon-Hoax" at least, if not also "M. Valdemar," "Hans Phaall" and the public debate over the "Moon-Hoax." It did not help his chances for ending up on the right side of the Authority expectation that he made mention in "Von Kempelen" not only of the Moon Hoax, but also the Maelzel exposé, which, even if readers did not know he had forged it, would still strengthen the tie between "Poe" and "hoax" in their minds. So, the Authority expectation would actually work against him in this hoax.

What, then, can be said for the incredible weight of foreign names and domestic sources Poe used to keep "Von Kemplen" ballasted in reality? Bernard Pollin is of the opinion that Poe actually shot himself in the foot with his slavish attention to the Wisdom and Foreign expectations: "…['Von Kempelen'] is, indeed, a 'tired' kind of hoax, which defeats its purpose by presenting too much of the familiar from which readers could check on its authenticity" (Pollin 14). Poe's overboard name-dropping might well have made his story ring a bit off-key, as popular science reports usually sacrificed extensive citation to keep up the excited pace of discovery. It appears Poe might have employed so much detail in this hoax—with much of it fragmentary and random, violating expectations of Internal Coherence—that he bogged down the sensational element. Overall, Poe made a misguided guess that his readers would rank Foreign, Wisdom, and Detail over Sensation.

It is also possible that Poe's hoax violated Novelty and Plausibility to a small extent. While alchemy was certainly the fodder for popular fiction in the nineteenth century—the Rosicrucian novel St. Leon by William Godwin being the stand-out example of this sub-genre (Pollin 19)—the "pseudoscience" sustained no discussion in popular science journals and was probably counted too medieval to have a hold on public faith. Poe's seemingly unerring sense of what "wowed" the public—like aviation, automatons, exploration, cryptography, and hypnotism—seems to have gone awry in this final hoax.

In conclusion, three important observations can be made about the interaction of reader expectations in the hoax-reading experience as a result of "Von Kempelen's" failure:

- Novelty and Plausibility may be consistently ranked above Popsci., contrary to Poe's ranking, which puts Popsci. or "verisimilitude" over Plausibility. "Von Kempelen's" failure shows us that if alchemy is simply not a novel or plausible scientific topic, it will not matter to the reader how close its presentation mimics a "true" science report. This indicates a ranking of experience with the topic over trust in rhetorical form.
- Expectations are not met or violated in isolation, but in interaction with other expectations. Poe had a great deal of detail in this story. But since Detail appears to compete with Sensation in popular science reading, too much detail retards sensation. Expectations can fail by being over-met just as well as by being under-met, depending upon their interactions with other expectations.
- Poe interpolated a great deal of "tangential" information between the Popsci. elements. In many places, the tone of "Von Kempelen" is chatty and gossipy, more typical of one of Poe's Literati portraits than a news story.[11] Interpolation of material from other genres, as seen in the case of

[11] One of these tangents is a section that mocks George Eveleth, a medical student and regular correspondent of Poe, who tried to steal some of Poe's glory after the publication of *Eureka* by claiming to have already had and circulated some of the central ideas in it, according to Bernard Pollin (17). Poe renames Eveleth "Kissam…or is it Mr. Quizzem…." The passage reads in part, "It seems to me quite incredible that any man of common understanding could have discovered what Mr. Kissam says he did, and yet have subsequently acted so like

"M. Valdemar," can confuse readers and make it difficult for them to play decisive interpretive games. Poe's non-linear personal commentary in "Von Kempelen" may have obscured the Popsci. elements for his readers. When viewed from the perspective of common reading expectations, Poe's final hoax appears to have failed because, ironically, Poe tried too hard. In a concentrated attempt to mimic all the features he believed to drive a successful hoax, he overloaded the story with fragmentary details, citations, and comments that blurred its structure and confused its readers.

7. SOLUTIONS TO PROBLEMS IN POE SCHOLARSHIP

In this project I have redefined hoaxing as a meta-genre—a game played between author and reader in a news medium over readers' expectations about a particular genre, science news, in this case. This approach to Poe's hoaxing revises previous work on it in two important ways: it accounts for the multiple generic classifications of Poe's hoaxes over the years, and it restrains the over-application of the term "hoax" that has plagued Poe scholarship since the 1960s.

First, acknowledging that we must theorize reader expectations to understand hoaxing helps account for the confusion over how to classify Poe's hoaxes since their original printings. For example, we are now prepared to explain why "M. Valdemar" is classified both as a hoax—by Poe's

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a baby—so like an owl—as Mr. Kissam *admits* that he did. By-the-way, who is Mr. Kissam? And is not the whole paragraph in the *Courier and Enquirer* a fabrication got up to 'make a talk'? It must be confessed that it has an amazingly moon-hoax-y air" (606). The snide similes and chatty tone of this passage are very out-of-keeping even with the relatively serious language of the first paragraph of the story, reproduced in the text above. This language had to have thrown a wrench in readers' interpretive processes.

contemporaries and by current science studies scholars like Alexander Boese—and as a science fiction tale by critics like Roland Barthes and Bruce Franklin. The generic ambiguity is not a strictly textual function but resides in shifting reader expectations about medium and context.

Changing the medium of publication changes the criteria by which the reader assesses the truth-value of the story. When a reader encounters "M. Valdemar" in a literary collection, it is most likely that she suspends judgments on truth-values altogether, since those are not decisions pertinent to fiction reading. When the original readers of "M. Valdemar," however, encountered the story in The American Review, which regularly carried political and science news, decisions about truth figured centrally in their interpretation of the text.

Shifts in context have occurred as the society in which Poe's readers' live in has changed. George Kennedy describes this transformation through the lens of the interpretation of classical rhetoric texts throughout European history in Classical Rhetoric and Its Christian and Secular Tradition from Ancient to Modern Times. *Letteraturizzazione* is the process by which a rhetorical text comes to be read under literary, or "decoupled" genre expectations. Kennedy tracks the progress of Cicero's De Oratore and Longinus's On the Sublime from their Roman reception as technical manuals for the production of political discourse, to their nineteenth-century Belletristic employment as catalogues of tropes and rhetorical devices to be reproduced in literary writings divorced from action in the public sphere. Many forces can drive this shift in reading expectations, but primary among them is the outmoding of the text's original

arena of application—a democratic assembly, in the case of Cicero's and Longinus's texts (Kennedy 111-112).

In the case of "M. Valdemar," to take one of Poe's hoaxes for comparison, removing it from its original news medium and from a heated *kairos* of debate over mesmerism's scientific potential forces generic reevaluation. Readers are incapable of taking mesmerism as seriously ten years after the hoax's original publication, much less 150 years later. "M. Valdemar" has undergone *letturaturizzazione*, has become science fiction by default because its topic is outmoded in the modern reading context and it now appears in literary media rather than news media; thus, it has lost its ability to affect readers' perceptions of reality. Any analysis of Poe's hoaxes that ignores the reader's expectations about medium and context in assigning a text to a genre will miss this crucial point.

It is hard to concretely illustrate the *letturaturizzazione* of "M. Valdemar" because of the difficulty of producing diachronic readings of the story. However, comparison of the hoax with a near-contemporaneous piece of science fiction may be helpful in illustrating the transformations that a literary context can effect on arguments about scientific reality. Writer Fitz-James O'Brien came to New York in 1852 a few years after Poe's death and published science fiction stories in literary magazines like Harper's New Monthly and Atlantic Monthly until he died fighting for the Union in 1862. His stories were on topics remarkably similar to Poe's hoaxes: "How I Overcame My Own Gravity" recounted the experience of someone who flies into the atmosphere with the aid of a gyroscope, and "The Bohemian" concerned the gold rush and mesmerism, as did "M. Valdemar" and

"Von Kempelen" (Franklin Future 319-320). O'Brien's stories, however, were never called hoaxes, likely because they were never framed in a news context, which several of Poe's were. Even in the borderline case of "Hans Phaall," which appeared not in a newspaper but in the Southern Literary Messenger, our reconstructed reader expectations are still sufficient to distinguish Poe's hoax from O'Brien's science fiction.

O'Brien's "How I Overcame My Gravity" appeared in Harper's Monthly Magazine, which began publishing in 1850, the year after Poe's death. It is on a topic very close to "Hans Phaall": in the story, a scientific dabbler manages to fly high into the atmosphere with the aid of a gyroscope. Both stories are contained in literary monthlies, though because of its lack of competition, the Southern Literary Messenger was forced to carry a great deal more political and general news than Harper's was, so Poe's hoax had that advantage. However, compare the openings of the two stories:

"How I Overcame My Gravity"

> I have all my life been dallying with science. I have coquetted with electricity, and had a serious flirtation with pneumatics. I have never discovered any thing, nevertheless I am continually experimentalizing. My chambers are like the Hall of Physics in a University. Air-pumps, pendulums, prisms, galvanic batteries, horse-shoe magnets with big weights continually suspended to them: in short, all the paraphernalia of a modern man of science are strewn here and there, or stowed away on shelves, much to the disgust of the maid-servant, who on cleaning-day

longs to enter the sanctuary, yet dare not trust her broom amidst such brittle furniture. (O'Brien 779)

"Hans Phaall—A Tale"

By late accounts from Rotterdam that city seems to be in a singularly high state of philosophical excitement. Indeed phenomena have there occurred of a nature so completely unexpected, so entirely novel, so utterly at variance with pre-conceived opinions, as to leave no doubt on my mind that long ere this all Europe is in an uproar, all Physics in a ferment, all Dynamics and Astronomy together by the ears. (Poe "Hans Phaall--a Tale" 565)

It is not difficult to sense the difference between the rhetorics of these openings intuitively. Poe's seems much more serious and newsy than O'Brien's. The difference is actually attributable to the Mystery expectation. Poe is introducing an "unexpected" "novel" discovery. O'Brien is rather humorously setting the stage for a personal account of misadventures in science. Readers would not be likely to confuse O'Brien's rhetoric for that of a science news report, especially as in its original print context it immediately followed an extraordinarily sappy love story entitled "Cool Captain." At least "Hans Phaall" had the good fortune, for its hoaxing project, to share the page with a non-fiction piece—a critical history of English poetry. This simple comparison of the rhetoric and immediate print context of O'Brien's science fiction with Poe's hoax does not settle the issue of the confused classification of Poe's hoaxes, but it

offers additional evidence that reader expectations must be consulted when assigning texts to genres.

The other major contribution a reader-expectation-based methodology makes to the conversation about Poe's hoaxing is to help salvage that activity as something special and significant as compared to Poe's other fiction practices. Beginning in the 1960s, there was a strong tendency in Poe scholarship to re-categorize most, if not all, of his tales as "hoaxes." In the vanguard of this trend was Richard Benton's "Is Poe's 'The Assignation' a Hoax?" in 1963 followed by G.R. Thompson's "Is Poe's 'A Tale of the Ragged Mountains' a Hoax?" and a slew of other analyses claiming hoax status for "The Mystery of Marie Rogêt," "The System of Dr. Tarr and Prof. Fether," "The Murders in the Rue Morgue," "The Premature Burial," and Eureka, among other texts. Marie-Louise Nickerson Matthew, in her 1975 dissertation "Forms of the Hoax in the Tales of Edgar Allan Poe," finds that all of his tales are hoaxes—either external hoaxes fooling readers or internal hoaxes giving Poe himself provisional illusions of epistemological stability. Published a few years after that analysis, the essays in Dennis Eddings's 1983 collection The Naiad Voice: Essays on Poe's Satiric Hoaxing mark the height of this fashion of hoax-hunting.

This trend was ostensibly well-motivated, as Poe actually used the word "hoax" in reference to his *jeux d'esprit* in the news media; in addition, his predilection for codes, cryptograms, and other forms of "mystification" was legendary. Complicating these re-analyses of Poe's tales, however, is the fact that in most of them, the same story was indiscriminately assigned to several related

genres. For example, G.R. Thompson refers to tales like "The Assignation" as "hoaxlike parodies" (454), and Benjamin Franklin Fisher variously categorizes the rhetoric of "Tarr and Fether" as "hoaxing," "self-parody," "satiric," and "burlesque" all in a single page (136). Some of this generic confusion can be easily clarified through more rigorous attention to the special effects of parody, satire, and burlesque on readers, as demonstrated in Chapter One. However, in addition, viewing hoaxing as a special game in guessing and satisfying reader expectations provides a powerful tool for focusing the application of the term "hoax" correctly and precisely in Poe criticism. To illustrate this point we can revise from a rhetorical perspective two of the more recent reclassifications of Poe's fiction as hoaxes.

John Bryant, in his study of "Murders in the Rue Morgue" in "Poe's Ape of UnReason," determines that the story is in reality a hoax. Bryant cites the sociology of Johan Huizinga and Clifford Geertz in a definition of Poe's hoaxing practice as a "satiric antiritual" that in its mean-spiritedness denies its readers the comic closure of being able to laugh at themselves and thus to release the tension of the author's attack on them (Bryant 28). This analysis jibes with the picture of hoaxing we have been developing in many ways. However, in illustrating the "satiric antiritual" of Poe's hoaxing, Bryant does not choose one of the media hoaxes. Instead, he focuses on what is widely considered to be the first detective story. Bryant claims that "Rue Morgue" is a hoax because Poe hides the clues to the L'Esplanayes' deaths so well that the reader cannot figure them out and must defer to Dupin's genius and his eleventh-hour revelation of the clump of

orangutan hair that clinches everything. Thus, hoaxing, in Bryant's analysis of "Rue Morgue," is simply not playing straight with the reader.

While "Rue Morgue" and the media hoaxes indeed share a common theme of science—the newly-developing field of forensic science, in the case of "Rue Morgue"—several dissimilarities between the rhetoric of the two practices, and the conditions of their publication, suggest that Bryant's crying hoax over "Rue Morgue" is premature and threatens to efface a rich and important distinction in Poe's rhetorical practices. Poe was very aware of the rhetorical game he was playing with readers in his detective tales like "Rue Morgue," and it was a game quite different from the one he played in his media hoaxes. He intended the secret machinery of his hoaxes to remain concealed for the duration of the reading, for at least some of his readers. By contrast, in his detective fiction, Poe admitted to having "woven" highly artificial mysteries that he would then set about "unraveling" before the reader's eye; this became such a standard rhetorical procedure for him, in fact, that he grew weary of it and openly burlesqued himself doing it in "Thou Art the Man!" (Fusco 92). So, the first and most obvious response to Bryant's hypothesis about the hoax status of "Rue Morgue" is Occam's Razor: what do we have to gain by reclassifying "Rue Morgue" as a hoax when Poe has already identified it as a special sort of rhetorical mystery-making distinct from the parasitic meta-rhetoric of the science hoax? Bryant would perhaps argue that acknowledging "Rue Morgue" as a hoax uniquely reveals the "satiric antiritual" Poe puts his readership through to his benefit and their shame. But it is hard to see how a reader encountering "Rue Morgue" in the

very literary Graham's Magazine in 1841 would experience that tale in the same way as Locke's "Moon Hoax" or Poe's "Balloon-Hoax" in the New York Sun; thus, the Medium expectation serves to classify "Rue Morgue" as literary fiction rather than news. Admittedly, the opening of "Rue Morgue" does use a few words that would fit the Mystery expectations of science newsreaders, words like "glories" and "enigmas." However, they do not describe a new discovery, but rather abstract psychological concepts:

> The mental features discoursed of as the analytical, are, in themselves, but little susceptible of analysis. We appreciate them only in their effects. We know of them, among other things, that they are always to their possessor, when inordinately possessed, a source of the liveliest enjoyment. As the strong man exults in his physical ability, delighting in such exercises as call his muscles into action, so *glories* the analyst in that moral activity which disentangles. He derives pleasure from even the most trivial occupations bringing his talents into play. He is fond of *enigmas*, of conundrums, of hieroglyphics; exhibiting in his solutions of each a degree of acumen which appears to the ordinary apprehension preternatural (2)

This opening is very non-news-like in its musing abstraction and its failure to lay claim to the witness of a spectacular new scientific or technological phenomenon. Already the reader is alerted that the interpretive decisions they must make here will have little to do with establishing the truth-value of the story to follow. The immediate failure of "Rue Morgue" to satisfy the crucial reader

expectations of Popsci. and Medium about science news ensures that the story will not be read as fact, but as fiction. How, then, can Poe target the readers of "Rue Morgue" to embarrass them for their dim-wittedness, if they are not prepared to make interpretive decisions that engage their assumptions about reality? The readers of "Rue Morgue" are likely practicing "willing suspension of disbelief," to borrow Coleridge's original description in the Biographia Literaria of the "decoupling" of meaning from world-view that is the hallmark of fiction (6).

Probably the most general attempt to reclassify Poe's fiction as hoaxing was Marie-Louise Nickerson Matthew's 1975 dissertation "Forms of Hoax in the Tales of Edgar Allan Poe." As mentioned briefly above, Matthew claimed that all of Poe's fiction was hoaxing, either external hoaxes to dupe readers, or internal hoaxes to provide Poe himself with fantasies that provisionally stabilized his erratic mind. Matthew's definition of hoax fails at a high level, not at a more local level like Benton's and Bryant's. Her analysis elides the hoax's primary function of identifying and transforming reader expectations; this crucial mistake is what allows her to over-apply the term. Matthew ignores the fact that Poe's hoaxes transform reader expectations about genre and about the world. This transformation is accomplished through revelation of "the truth," which runs counter to the argument of the hoax and thus forces readers to reexamine their assumptions. Either Poe's hoaxes reveal themselves during the reading process, for cannier readers, or Poe himself reveals them, for the less canny. No one stays in the dark, or it is not a hoax ("hoax" again denotes not strictly the text but the

whole game over truth between an author and a reader through a news medium). A hoax's very *raison d'etre* is to undermine expectations. Where, then, is even the "provisional" stability that Matthew claims that the "internal" hoaxes like "Murders in the Rue Morgue" provided for Poe? Hoaxes are in the business of destabilizing reality, not stabilizing it.

The preceding are three examples of how attention to reader expectations about genre can help prevent over-application of the term "hoax" to all of Poe's work. However, consideration of these problems has in turn provided a crucial contribution to this project: a provisional overall ranking of the reader expectations collected so far. The fact that readers read Poe's hoaxes as hoaxes when they are in newspapers but as science fiction or detective fiction when they are in literary collections indicates that the expectations of Medium and Authority dominate other reader expectations. These high level expectations of medium and author determine the kind of interpretive game that will be played from there on in. If Medium and Authority support factual news-reading, then games over truth will be played, utilizing the expectations about the "real world" and the rhetoric of science news collected in this project. If Medium and Authority support a fiction reading game, then the Entertainment expectation kicks in, the game is "decoupled" from decisions about truth, and other important literary sub-expectations under Entertainment apply, which are beyond the scope of this dissertation.[12] Combining this new perspective on expectation-ranking with that

[12] Interestingly, Zwaan found in his study of the effects of media that participants who believed they were reading fiction reported appreciating the language of the story. His finding jives well with the reactions of contemporary readers of Locke's hoax who ranked Entertainment highly in their interpretive

garnered from consideration of the failure of "Von Kempelen" and Poe's own overt ranking of reader expectations, I suggest the following provisional ranking of reader expectations for antebellum science news:

{Medium, Authority}>> {Novelty, Sensation, Plausibility} >>

{Popsci., Foreign, Internal Coh.}

Again, ranking is from right to left, lowest-ranked to highest-ranked. Double angle brackets ">>" denote levels of rank, as would solid vertical lines in the tabular notation. Commas, like the dotted lines in the tabular notation, indicate lack of evidence for competition, and therefore equality of strength, among expectations in a given level of rank. Starting at the lowest level of rank, Foreign and Internal Coherence are relatively local expectations that seem to have the same strength as Popsci. (verisimilitude) expectations so far. Clearly more important than these expectations are Novelty, Sensation, and Plausibility, in agreement with Poe's own estimation. Finally, expectations about Medium and Authority are highest-ranked, "trumping" any other expectations in the case of conflict between them. Only when these higher-level expectations have been satisfied are lower-level ones allowed to play decisive roles in decisions about truth.

The only disagreement so far with Poe's own rankings is my placement of Plausibility above Popsci.; Poe felt that readers valued "verisimilitude" more than plausibility in a science news article. The reception of "Von Kempelen," however, illustrated the opposite case: a story whose rhetoric conformed very

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decisions. While they did not care about the truth-value of the story, they reported enjoying its imaginative structure and language.

well to the schema laid out in Popsci. still failed to convince its readers. I surmised in the analysis of that tale that alchemy was not a novel or plausible enough topic to engage readers's belief, and so Plausibility of topic was ranked along with Novelty, higher than Popsci. Although this is a provisional re-ranking of Poe's intuitions, in defense of it, the plausibility Poe criticized in the "Moon-Hoax" was a fine-grained, somewhat expert notion, requiring Poe's deeper-than-average familiarity with astronomical principles to be appreciated. The plausibility concerned in "Von Kempelen" is a rough-grained notion based on general public opinion about the modern applicability of alchemy, a very dusty medieval discipline. I believe this latter conception of Plausibility will be more widely useful in analyzing hoaxes.

This provisional ranking represents the filter the majority of Poe's readers may have been (unconsciously) using when approaching his hoaxes. It is unlikely that all of the expectations would have figured in any single reader's interpretation of one of Poe's hoaxes; reader decisions, as we have seen, tend to focus on just a few competing expectations, even if others are in play unconsciously. The filter, then, synthesizes the ranking information from the 17 or so extant individual reading decisions about Poe's and Locke's hoaxes. It therefore represents in skeleton form part of Poe's readers' world-view, their beliefs about science and science news—the ideational place where Poe engaged them and built a public relationship with them through his hoaxing.

8. POE'S RELATIONSHIP TO SCIENCE AND TO HIS READERSHIP: HOW THE HOAXES INTERACT WITH *EUREKA*

Now that we have examined the rules for the game Poe was playing with his readership in his hoaxes, the more interesting questions remain: What was he after? And why? These questions both come into focus by examining his hoaxing practices against Eureka, Poe's fullest statement of the relationship of the writer to reality and to his/her readership.

Eureka was published in 1848, between the hoaxes "M. Valdemar" and "Von Kempelen." There is every evidence that Poe felt Eureka would be the crowning achievement of his literary career, from the excited letters he wrote friends and publishers about the book. It represented an astounding range of scientific and philosophical reading. John Limon finds that the book's clearest debt is to the German school of *Naturphilosophie*, specifically to Schelling and Hegel, whose works had been published in English in America just a few years before the publication of Eureka (Limon 21).

It is actually easy to put the point of Eureka briefly because it was an argument that the entire universe was constructed and sustained by two and only two opposing forces, gravitation and electricity, called elsewhere attraction and repulsion, and Unity and difference (Poe Eureka 33,40-41). Poe anticipates deconstructive argument by claiming the universe is always in the process of its own undoing: "My general proposition, then, is this: --*In the Original Unity of the First Thing lies the Secondary Cause of All Things, with the Germ of their Inevitable Annihiliation*" (5-6). In a slightly ironic twist of fate, Poe was indebted to Richard Adams Locke for this idea. At the age of 18, Locke had written a

poem in six cantos about the cyclic destruction and rebirth of the universe, and at a Lyceum lecture he gave in Boston on magnetism, he expounded a refined version of this theory. Poe availed himself of the pamphlet and the concept for Eureka (Locke Moon Hoax xxxiii).

Poe begins the body of argument in Eureka with what has been called a "hoax," but what is really a bizarre recap of "Mellonta Tauta," where a letter fallen from a balloon time-traveling from the year 2848 criticizes the nineteenth century for its scientific backwardness. The old syllogistic system of "a Turkish philosopher called Aries and surnamed Tottle," is ridiculed for its rigidity, as is the "crawling" inductive system of "one Hog surnamed, 'the Ettrick shepherd'" (8-9). The only way to truth, implies Poe through the tinny voice of the letter-writer, is through the imagination:

> "…you can understand how restrictions so absurd on their very face must have operated, in those days, to retard the progress of true Science, which makes its most important advances, as all History will show, by seemingly intuitive *leaps*. These ancient ideas confined investigation to crawling; and I need not suggest to you that crawling, among varieties of locomotion, is a very capital thing of its kind; but because the snail is sure of foot, for this reason must we clip the wings of the eagles?" (9-10)

The letter-writer goes on to complain that the Baconican school of philosophy demanded that every truth be demonstrated empirically. Because true demonstration of anything is impossible due to the essentially individual and contingent nature of perception and belief, this unjust requirement stultified the

growth of science, and "No man dared utter a truth for which he felt himself indebted to his soul alone" (10).

On the contrary, Poe says when he is done ventriloquizing, to understand a concept as awesome and indemonstrable as the nature of the very universe, a different methodology must be developed. His new science sounds in places a great deal like Dupin's intuitive ratiocination. Here, Poe describes it as a "whirling on the heel" on the top of a mountain in order to take in the whole panorama in one sublime blur (6).

Of course, the rest of his argument about how gravitation and electricity work in the universe smacks a great deal of both Aristotelian syllogism in some places and Baconian induction in others. Although he claims that it is impossible to prove anything "axiomatically," he often works through syllogisms to build one part of his argument on another. And he seems to have a compulsive need to measure his ideas against the "real world." But Poe is actually attempting a great experiment in a slightly different system of reasoning here—analogy, through which truth is determined on the basis of correspondence of unknown phenomena to known phenomena, like the radiation of light and heat (Welsh 170). Poe writes "a perfect consistency can be nothing but an absolute truth"(16), and as he does, he indentures himself to Francis Wayland's conception of analogical reasoning, as well as to Humboldt's Cosmos, and to Laplace's nebular theory (Welsh 170, 185-186).

It has often been ventured, particularly by critics who have chosen to view him as a Romantic, that Poe hated science. Certainly, a cursory reading of

"Sonnet—to Science" and of his catty comments about Bacon in Eureka and elsewhere lend credence to this notion. But a careful examination of Poe's hoaxes and Eureka show that Poe was fascinated with science. He just favored his own science of imaginative leaps over what he viewed as the baby-stepping of Baconian induction. Further, he was not against all modern induction, just the version he believed to be common currency in America. His disdain for this plodding sample-collection with no inductive speculation is apparent in a letter for the Columbia Spy where he reviews the Wilkes expedition.[13] He calls it "encumbered with 'men of science.' Let some Yankee open the way (as, assuredly, some Yankee yet *will*), and let men of science follow his footsteps, and geologize at their leisure" (Mabbott 50). Again, Poe champions the adventurer with imagination over professional Baconian scientists….

> "…merely perceptive men…those inter-Tritonic minnows, the microscopical savants, the diggers and pedlers [sic] of minute *facts*, for the most part in physical science; *facts*, all of which they retailed at the same price upon the highway; their value depending, it was supposed, simply upon the *fact of their fact*, without reference to their applicability or inapplicability in the development of those ultimate and only legitimate facts, called Law" (Eureka 11).

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[13] The United States Exploring Expedition, begun in 1834, commanded by Captain Charles Wilkes. Along with Yale geologist James Dwight Dana, an illustrator and ethnographer attended the naval expedition to collect and record samples along the West Coast of the United States, the South Pacific, and Australia.

Poe's hoaxing dovetails neatly with this *credo* about the imagination. His hoaxes, as already pointed out, were designed to embarrass readers, but for what, and to what end? Daniel Hoffman has already argued convincingly that Poe was not interested in helping any of his readers learn more about science. With his hoaxes, Poe was engaged in a campaign to embarrass people for letting the rigid limits of modern science blind them to the truth they could have apprehended if they had freed up their minds intuitively. Thus, Poe points out his superior scientific-imaginative genius in being able to connive rhetorical contraptions that will dupe the reading public. The hoaxes, seen in this light, become an indirect argument, an advertisement, almost, for the transcendence of Poe's intuitive ratiocination over Baconian induction or Aristotelian deduction.

In the discussion of Poe's "Balloon-Hoax," the mechanistic nature of both the hoax and Poe's rhetoric was highlighted. I argued there that the hoax was actually a sort of machine or automaton that took in reader expectations and transformed them into an experience of shame or embarrassment. Daniel Hoffman has found the same mechanical aesthetic at work in Eureka. By boiling down the entire universe into two inexorable and completely balanced forces, Hoffman argues that Poe shouts to his readers, "The entire universe is a huge coherent contraption!" (Hoffman 281). Further, Hoffman contends, Poe proves through Eureka, through the Philosophy of Composition, the Poetic Principle, and other writings that he is essentially a "mechanician of literature and his theories a program for the production of verbal contraptions" (281). The hoaxes are some of these "verbal contraptions": Poe carefully built them, tinkered with them, watched

their progress in the world with the worried and elated anxiety of an inventor. They are designed to transform readers. When they work, they suck readers in and then, after spitting them out, leave them to look over the gears and pistons and marvel at the genius of the man who was able to do this to them.

This leads us to the question of what kind of relationship Poe wanted with his readership, because humiliation does not endear. Most analyses leave the relationship where we just did: traditionally, Poe feels "contempt" for his reading audience (Matthew 73). He is the insecure genius who uses his hoaxes to humiliate his readership so he can feel superior. Poe's own behavior and writings admittedly support this easy dichotomy of "hoaxers" and "hoaxees." In addition to his low opinion of the "readily gullible" public expressed in his Literati note on Richard Adams Locke, Poe elsewhere mocks the public as "*believers in every thing Odd*," whose "Credulity:--let us call it Insanity at once," marks them as "ignorant people" ("Fifty Suggestions," 1303). And why else would he throw a monkey wrench in the potentially lucrative run on copies of his "Balloon Hoax" by announcing it was a hoax, unless he wanted more than money (and he wanted money!), unless he wanted the face-to-face experience of forcing a crowd of his readers to admit their gullibility and his creative authority.

But this one-dimensional view of Poe's complex literary behavior in his hoaxes is dangerously reductionist. In an alternative view outlined in his Reading at the Social Limit, Jonathan Elmer attributes Poe's difficult relationship with the public to an essential incompatibility in American democracy between individuality and social assimilation. Elmer argues that, for a society that

champions the individual, it is ironic that both the "we" of American society and the "I" of the individual cannot be held in view at the same time because each implies the absence of the other. "'I' become riven by my participation in the social whole, and 'it' becomes riven by my exemption from it"(30). This dynamic is exactly reflected in the tension between attraction and repulsion in Eureka. As Poe points out in the preface, this tension in the universe is not primarily a physical, but a spiritual, social, and poetic principle as well. In spiritual terms the philosopher's independent thought creates a difference that always pulls him/her against the gravitational force trying to coalesce everything in a primordial state of Unity. And even though Poe tries to reassure the ardent individualist that it will not really sting to lose one's identity and get sucked into the One, he does not seem to buy his own rhetoric:

> The utter impossibility of any one's soul feeling itself inferior to another; the intense, overwhelming dissatisfaction and rebellion at the thought; these…are, to my mind at least, a species of proof far surpassing what Man terms demonstration, that no one soul *is* inferior to another; that nothing is, or can be, superior to one soul; that each soul is, in part, its own God--its own creator….(135)

The spiritual principle is fast becoming a social principle here. For in true Heisenbergian form, the closer Poe gets to determining himself as an individual, the more isolated he feels from his community; conversely, the more he allows himself to be absorbed into the mass of American culture, the more anxiety and uncertainty he experiences about his personal identity. Karen Roggenkamp

claims this anxiety explains Poe's courting of the penny press, a journalistic forum he considered beneath him. The fame and notoriety Locke attracted with his hoax made Poe want some of it for himself. Yet, the closer he got to identifying with his readers, while trying to guess their expectations, the more anxious he became that he was one of them, that he, too, was a member of the mediocre "masses" that he so longed to prove his superiority to. He commented somewhat ironically on this dilemma by way of discussing the social effect of satire in an unpublished draft of his Literati portrait of Laughton Osborn:

> …thus in satirizing the people we satirize only ourselves, and can never be in a condition to sympathize with the satire.
>
> It is forgotten that no individual considers himself as one of the mass. Each person, in his own estimate, is the pivot on which all the rest of the world spins round. He may abuse the people by wholesale, and with a clear conscience so far as regards any compunction for offending any one from among the multitude of which that people is composed. Every one of the crowd will cry "encore!--give it to them, the vagabonds!--it serves them right." [Poe, 1846 #58 79]

The hoaxes are in many ways the instantiation of Poe's insecurity about his social identity; they show him both longing to be absorbed in a community of fellow thinkers, while attempting to distance and dichotomize the "multitude" he feared he actually belonged to. A hoax, the process of reading a hoax, materializes a double readership—the readers who fall for it, and those who catch on and read it as a co-conspirator of the hoaxer rather than as his/her victim. As

mentioned before, those two sets of readers actually live in different worlds formed by their beliefs. It is this second world of readers that is often overlooked in assessments of Poe's hoaxing, an audience Poe invoked, created, in fact, with the clues he left in his hoaxes for the acute observer: the goofy underlying meanings of his foreign names like *Schnellpost*, and the fact that "Hans Phaall" sets out in his balloon on April 1, and the use of the name "Kissam" as a reference to a sycophantic correspondent whom Poe's friends would have recognized immediately. Kent Ljungquist argues that this verbal play is deliberate and "central to [the] hoax, a form that establishes two audiences: those deceived by the author's ironic dissembling and those cognizant of his satiric purpose" (Ljungquist 204).

Poe would have immediately recognized this potential for duality in the mechanics of the hoax because he was already at home with doublings and double motions in his writing. His tales contain many pairs of characters who twin each other, reflecting back to each other complementary (and often annihilatory) characteristics: Madeline and Roderick Usher, Dupin and the Minister D, Dupin and the narrator in Murders in the Rue Morgue (Guthrie 94). Eureka, in fact, is a double motion, both poem and scientific treatise, and the universe in it is a constant double motion of attraction and repulsion, Unity and difference.

It is exactly this double motion of attraction and repulsion that Poe was engaging in with his readership: distancing himself from a readership "too exclusively intent on the making of money" to use their imaginations or to support artists (Hoffman 185), while drawing to him those few to whom he

dedicated Eureka, those "who love me and whom I love, to those who feel rather than to those who think, to the dreamers and those who put faith in dreams as in the only realities" (6) (Swirski 28). These people Poe deemed worthy of communion; they could join him "spinning on his heel" on the summit of Aetna and agree with him that reality was not what actually happened but what could happen. These "few gifted individuals, who kneel around the summit, beholding, face to face, the master spirit who stands upon the pinnacle" ("Letter to B____" 5), could become god-like writers of reality for American readers. Like the suffocating but strangely compelling vision of communion between the narrator and Dupin in "Murders in the Rue Morgue," Poe's hoaxes, when defined as carefully engineered rhetorical transactions with a double audience, reveal him not just yearning for community, but actually designing and building it. Accordingly, even his most traditionally esoteric texts, like Eureka and The Poetic Principle, deserve re-examination not as uneven attempts at creating theory, but as complex exercises in creating publics, seeking communion. Such re-readings, although beyond the scope of the present project, promise to provide a richer appreciation of Poe's rhetorical and social behavior as a pioneer of American genres.

Chapter Three: Mark Twain and the Social Mechanics of Laughter

It seems inevitable that Twain would turn to hoaxing given his penchant for satire—expressed as early as the age of 17 with his first published story, "The Dandy Frightening the Squatter," for the humor magazine The Carpet Bag. That he would choose *scientific* media hoaxing for the mode of his first published hoax, "The Petrified Man," seems an equally natural turn for Twain. Science and technology were preoccupations of his writings and business dealings from his jaw-dropping admiration of the World's Fair in New York in 1853 to his disastrous investment beginning in 1880 in the Paige automatic typesetting machine, which Twain was certain would revolutionize the print business.

However, until now, Twain's fascination with these topics, and with the philosophy of mechanism, has mostly been treated as a biographical vehicle through which to psychoanalyze Twain in his final depressed years as a writer and bereaved husband and father. This has been the approach of scholars such as Lawrence Berkove, Tom Burnam, Pascal Covici, Sherwood Cummings, and Hyatt Waggoner. While Covici attempts to use the hoax as a figure for Twain's late-life determinism, none of these authors look to Twain's hoaxing as a necessary component of his philosophy of science. Connecting Twain's hoaxing

in "The Petrified Man" and the "Empire City Massacre" with his philosophy of science and culture in later works like A Connecticut Yankee in King Arthur's Court suggests a different conclusion. Instead of ambivalence about the value of science in society, or fatalism about the increasing mechanization of human culture, Twain's hoaxing practices point to a more complicated response to science and technology in American culture. They reveal the double-edged sword of rhetoric as an instrument of social control—and laughter as a complex and constructive response to that rhetoric, promoting self-determination and independence.

To build an argument about Twain's hoaxing toward that conclusion, I will first examine Twain's rhetorical and scientific acculturation, focusing especially on his experience with the tall tale and how that rhetorical activity helped lay the groundwork for the development of the media hoax. Next, I will consider in detail Twain's first and major scientific hoax, "The Petrified Man"—both its motivations, as stated by Twain, and the reaction to it. I will use reader reactions and Twain's characterization of them to further modify the filter of science-newsreading expectations developed in the last chapter to accommodate changes in *kairos* since Poe's time. Finally, I will compare the results from the study of Twain's hoaxing against his scientific thinking expressed in three of his later major fiction works dealing with science and technology: 3,000 Years Among the Microbes, The American Claimant, and A Connecticut Yankee in King Arthur's Court. Claims that Twain had no social program with his hoaxing

will be reevaluated in light of these works, his early hoaxes, and evidence of his deploying laughter as an attack against the power of science in American politics.

1. RHETORICAL ACCULTURATION

1.1 Formal education

If Poe received from his schooling everything he would need in terms of rhetorical and scientific training to prepare him to write science hoaxes, Twain's education presents a different picture. In a letter to his brother Orion in 1865, Twain laments having little formal rhetorical cultivation of his native talents: "Though the Almighty did His part by me--for the talent is a mighty engine when supplied with the steam of **education**--which I have not got, & so its pistons & cylinders & shafts move feebly & for a holiday show & are useless for any good purpose" (Clemens Mark Twain's Letters 323). Needless to say, in light of our investigation of the connection between Twain's rhetoric and his scientific and technological thinking, it is significant to find him thinking of rhetoric in mechanical terms at about the same time he is composing his first hoaxes. The dramatic self-regret performed in this letter, on the other hand, is misleading. Twain prided himself on his work-a-day background and practical self-education as a riverboat pilot, a miner, and a writer.

As a young boy, Twain attended a private school in Hannibal costing a quarter a week, and that only infrequently, whenever the fishing was no good, according to his Autobiography (40). There, he learned spelling and math, recited poetry and prose selections, and was taught to explicate bible stories (41). He may even have been exposed to some Latin and French on the days he deigned to

come to class (Hoffman 15). The most vivid pictures of what his classroom life might have been like do not come from his autobiography but from his fiction—for example, the school scenes in Tom Sawyer—and from his reports on schools for the Territorial Enterprise in Nevada. On a visit to Miss Clapp's private school in Carson City in 1864, Twain found that the schoolroom had not changed much since the days of his formal tutelage. Neither had the form of student compositions, in which Twain claimed to recognize these features of his own schoolboy writing:

> The cutting to the bone of the subject with the very first gash, without any preliminary foolishness in the way of a gorgeous introductory; the inevitable and persevering tautology; the brief, monosyllabic sentences (beginning, as a very general thing, with the pronoun "I"); the penchant for presenting rigid, uncompromising facts for the consideration of the hearer, rather than ornamental fancies; the depending for the success of the composition upon its general merits, without tacking artificial aids to the end of it, in the shape of deductions or conclusions, or clap-trap climaxes, albeit their absence sometimes imparts to these essays the semblance of having come to an end before they were finished--of arriving at full speed at a jumping-off place and going suddenly overboard, as it were, leaving a sensation such as one feels when he stumbles without previous warning upon that infernal 'To Be Continued' in the midst of a thrilling magazine story. (Clemens MT of the Enterprise 136-7)

Twain's perceptive dissection of this genre of composition indicates a facility for rhetorical analysis that doubtless served him well when he wrote in parasitic genres like satires, parodies, and hoaxes. Clearly, Twain himself did not remain at this childish level for long in his own composition practices, as he was published by the age of 17. The classroom was not instrumental in developing his rhetorical skills. Rather, his newspaper apprenticeships, beginning at the age of 12, and his affinity with oral narrative and humorous traditions account for the bulk of Twain's rhetorical preparation for hoaxing.

1.2 Newspaper apprenticeships

After the death of his father in 1857, Twain dropped out of school for good and was apprenticed to his brother Orion at the Hannibal Journal, which Orion edited. Twain's duties included setting type, proofing sheets, and occasionally composing advertisements and news items. Working at the paper acquainted Twain with the actual mechanics of newspaper production as well as the role the paper's rhetoric played in its readers' lives. At a young age, he proved himself already aware of the news medium's authority to startle people and remake their world. An early hoax-like joke was printed on the front page of the Journal in 1853: "Terrible Accident! 500 Men Killed and Missing!!" read the headline. The story went on, "We had set the above headline up, expecting (of course) to use it, but as the accident hasn't happened yet, we'll say (to be continued)" (Lauber 46-47).

It was during this time that Twain published his first satire in The Carpet Bag in 1852. Then, in 1853, tired of his brother never having enough money to

pay him his wages, he left for St. Louis to work principally as a typesetter on the Evening News. He stayed only a few months before moving on to New York City to see the World's Fair and to try his hand as a compositor for a printer. Here he embarked on a program of self-education through reading at the local printer's library in the evenings, or so he assured his mother, who undoubtedly feared for his moral life in the big city. Sometime during this period, he read the satire of Laurence Sterne, Thomas Hood, and George W. Curtis. Twain also liked Oliver Goldsmith's Citizens of the World, and Cervantes's Don Quixote. In a February, 1861, letter to his brother Orion, he alluded to reading Dickens. Other early reading for which we have evidence includes Thomas Paine's Age of Reason, Voltaire, and William Tappan Thompson's Major Jones's Sketches of Travel (Emerson 8). Twain enjoyed travel books in general and Herndon's Travels in the Amazon in particular (Clemens Autobiography 128). The influences of these writers, especially the satirists, began to emerge in the pieces Twain wrote for the Spirit of the Times, a sporting magazine that emphasized in the style of its articles the "distinction between the false and the real and between the pretentious and the unsophisticated"—all characteristic of oral humor genres like the tall tale and the practical joke (Emerson 4). The satire and travel narratives he read, when combined with the frontier humor tradition and his experience with the mechanics and authority of news media, made media hoaxing a natural next step for Twain.

1.3 Frontier humor: the practical joke and the tall tale

Probably the greatest influence on Twain's hoaxing practices was his experience with frontier humor—prefigured by his early reading of Spirit of the Times and actualized by his stint as a riverboat pilot and his migration to the territory of Nevada during the Civil War. This exposure marks a major difference between Poe's and Twain's hoaxing, but also a significant common thread. Poe went through much of the same preparation for hoaxing as Twain did—living in the North and South with different classes of Americans, reading travel narratives, writing for newspapers. But Poe did not live in the West, while Twain did for nearly half his life (Missouri counted as the West at that time). Twain situated his hoaxes on the frontier, since that was a liminal epistemological realm for his readers. Poe, living in the urbane east, had to situate his hoaxes on other borders of American experience—Europe, space, life/death, matter/energy. While frontier humor did not have the impact on Poe that it did on Twain, the idea of the frontier insinuated itself into both of their hoaxes as the line where human knowledge became insecure, and thus where a hoax was most effective. It is significant that hoaxing activity died down in New York and the East Coast at the same time it was working up a good head of steam in the West—also, that Western hoaxes were about the West, not Europe or Fiji or the moon.[14] Twain's hoaxing thus responded to two shifts in American humor, according to Walter Blair and Hamlin Hill. It championed the little guy, the pioneer, over the powerful and rich,

[14] The one exception to this rule of which I am aware was an 1899 hoax by Denver newsmen about the Great Wall of China being dismantled. However, China, too, was a sort of American frontier as it was the focus of foreign trade efforts after the Civil War (cf. the "trade dollar" controversy in Chapter Five).

and it was essentially regional, one reaction of humor to the national stresses of the Civil War (Blair 260). The frontier was the new locus of reality-making for Americans in many significant ways, and it is appropriate that Twain and other news writers on the frontier took advantage of that fact to demonstrate authority over their readers and over the powerful new culture of science.

Frontier humor, also often called southwestern humor, is exemplified best by the tall tale and the practical joke. Pascal Covici characterizes these forms as follows: "If there is any one pattern basic to the humor of the Southwest it is precisely this: a character is pushed by the author into a situation in which he either exposes the pretensions of others or himself emerges as ridiculous because of his pretentious behavior" (Covici 8).[15] The satiric or critical gist of the tall tale and the practical joke initially appears incongruous with the historical notion of the frontier as a very serious zone of danger and wonder—until the social dynamics of pioneer life are more closely considered. The frontier was indeed replete with elements beyond the control of the pioneers—native peoples, lethal plants and animals, ghastly weather. In addition to contending with this environment, pioneers had to contend with each other for resources and respectability. The old hallmarks of class and caste did not apply on the frontier. Other methods were developed to secure coveted status as a savvy insider and to ostracize outsiders.

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[15] The phrase "author" is slightly misleading because these forms were primarily oral and were only recorded by authors, as Hooper recorded the Suggs stories, after they had been in circulation for decades.

The tall tale and practical joke emerged as rhetorical mechanisms of control along the frontier, which is, after all, "a country without a history" (Cox 98), the boundary at which human knowledge becomes unstable. Both rhetorical modes excited laughter which provided much-needed detachment from—and therefore a sense of objective control over—the dangers of frontier life (Covici 7, 31). Neil Harris describes the psychological functionality of the tall tale and the practical joke as "a way of reducing a hostile and threatening environment to human scale by manipulating its elements and so demonstrating control over them" (Harris 71). A good example of this use of the tall tale in Twain's work is the story from Roughing It of Bemis and the buffalo hunt. The band of travelers that the narrator joins gets stuck after crossing the Platte River when their stagecoach breaks down. They decide to go on a buffalo hunt while they wait for rescue by the next stage, and in the process, the passenger Bemis gets chased by a buffalo and stuck up a tree until he can be retrieved by the other passengers. To regain some face, he tells an elaborate story about the ferocity of this particular buffalo and the amazing self-restraint he demonstrated in not shooting it because if he had, he claimed, his gun was so powerful it would have killed not only the buffalo but also several of the other passengers in the hunt (61-66). Not only does his tale entertain the other passengers, but it is also an attempt by Bemis to regain symbolic control over both the buffalo and the ensuing humiliation.

This illusion of control served a social function, too, with respect to outsiders on the frontier—"greenhorns" or "city slickers." The telling of the tall tale or performing of the practical joke demonstrated, on the part of the insider, a

superior level of comfort with and control over elements of the frontier—wild animals, storms, vicious ruffians—that terrified and bewildered the outsiders (Covici 27; Rourke, 2:4). Thus, these rhetorical modes pitted knowledgeable insiders against greenhorns and used mechanisms of deception and revelation to force the greenhorns to publicly acknowledge their outsider status—much like the revelatory and humbling mechanisms of the hoax (Lee 142; Cox 15). A good example of this aspect of the tall tale is the Buncombe Trial in Roughing It. Buncombe, a city lawyer, comes out to a frontier town to try a case in which a house has been moved on top of another house by an avalanche; the owner of the topmost house is now laying claim to the land of the bottommost house-owner and wishes Buncombe to represent him. The trial gets more and more ridiculous, and more and more exasperating for Buncombe, until it is revealed that the whole thing was an elaborate charade by the townfolk to "put one over" on the city lawyer (241-247). A group of insiders construct an elaborate tale to consolidate their status and to publicly ostracize an outsider who pretends to have authority on the frontier.

In this way, the tall tale and practical joke both served a leveling function. Pioneers bought enthusiastically into the Jacksonian ideal of the absolute equality of common Americans and its attendant suspicion of any kind of aristocracy or undemocratic privilege. The worst charge that could be leveled against someone was that of "social impersonation," pretending to be an insider when you were not, pretending to belong to a higher class than someone else (Cook 26-27). The tall tale and practical joke demonstrated the superiority of the seasoned pioneer

over the more "sophisticated" Easterner, thus rendering old Eastern hierarchies and mores "bootless" on the frontier.

An interesting micro-example of this rhetoric is observable in a practical joke played on Mark Twain by Artemus Ward, reported by C.C. Goodwin in his memoir about the salad days of the Territorial Enterprise. Ward visited Virginia City for several weeks in 1863 and went out drinking with the writers and editors for the paper. With at least three humorists in the group—Twain, Ward, and Dan De Quille—there was no small amount of grandstanding as each tried to better the others with quips, stories, and jokes. Ward chose an interesting tactic to "take the stuffing" out of Twain's pretensions to literary superiority when he played a practical joke on Twain in which he defined the word "sulphurets" in three increasingly incomprehensible ways while Goodwin, De Quille, and the others all nodded in mock comprehension. Twain got increasingly flustered at his inability to keep up with Ward's condescending nonsense until Ward finally managed to convince Twain via his dullness that he was drunk silly. Twain was livid when the joke was revealed (Covici 146).

The practical joke and the tall tale differ from each other in a few important ways, although Twain was a regular practitioner of both, especially during his Western years. The tall tale is told to the outsider, while the practical joke is *performed upon* the outsider. The practical joke is usually more individual and circumstantially-bound than is the tall tale, which possesses a formula which may be repeated in different circumstances to a similar effect. However, the similar functions of these rhetorical forms with respect to frontier epistemology

and sociology make them natural predecessors to the scientific media hoax; in fact, Constance Rourke, in her famous study of modes of American humor, marks frontier humor as the immediate progenitor of the "Moon Hoax" in 1835 (Rourke 2:6). The hoax differs from frontier humor in important ways, which Twain exploited, and these will be discussed after consideration of his first hoax, "The Petrified Man." Before we can account for the rhetoric of that hoax, however, we need to consider how Twain acquired not only the "insider" knowledge of science necessary to pulling off a science hoax successfully, but also the motivation for doing it.

2. SCIENTIFIC ACCULTURATION

The questions about the influence of science on Mark Twain's hoaxing amount to these: how did he get interested and educated in science? And, what kind of relationship with scientific culture he was trying to establish by hoaxing his readers? Twain's scientific education was quite different from Poe's. It was informal and trade-based, developed first through riverboat piloting and mining, and later through reading and investing in inventions. Twain did not have the same bone to pick with science and scientists that Poe did, since Twain did not have a competing epistemology he wished to publish. Science impacted Twain's practices at the level of authority. Scientists were competitive authors in creating the West for readers and in taking credit for that creation. During Twain's tenure in the West, the United States launched myriad scientific expeditions, like Powell's Grand Canyon expeditions and other sorties of the United States Exploring Expedition. The newspapers and publishing houses were full of their

reports, which effectively created these unknown regions for readers *ex nihilo* (Blair 228). Often the reports were exaggerated. Twain must have sensed competition with his own exaggerated stylings of the West, because he set out to "kill" his readers' overblown opinion of the authority of paleontologists with "The Petrified Man" hoax. The hoax was Twain's way of cutting competing scientific authors and their "stories" down to size, while re-establishing his authority over his readership as the one writer who could deliver the authentic West.

Scholars have gone back and forth on Twain's scientific education. Certainly, science figured centrally in his reading. Albert Bigelow Paine quotes him in his Biography as saying "I like history, biography, travels, curious facts and strange happenings, and science" (512). In his Autobiography Twain describes learning the basic tenets of evolution from one McFarlane, a well-read boarding-house laborer, several years before Darwin's Origin of Species was published (127). Throughout Twain's life, he evinced interest in other sciences than just biology: geology in particular—due to his mining experience—as well as anthropology and astronomy. Post-1870 we have evidence of him reading Thomas H. Huxley's Evolution and Ethics, Darwin's Descent of Man, Bayne's Pith of Astronomy, and the writings of physicist and philosopher Sir Oliver Lodge (Waggoner 362). Twain also showed some fascination with phrenology, palmistry, "dream science," and telepathy, although in later years he dismissed almost all of these as bunk (Ketterer 69; Waggoner 361).

Twain had no formal scientific education, however, and this shortcoming has sparked the debate over his "insider" status with respect to science and technology. The prevailing opinion until recently, according to Judith Yaross Lee's reconstruction of the debate, was established in 1937 by Hyatt Waggoner. Waggoner argued that Twain's lifelong reading in the sciences and his technical experience as a printer, pilot, miner, and inventor qualified him with a level of scientific expertise in spite of his lack of formal education (Waggoner 359). Lee, however, takes issue with the Waggoner school of reading Twain's scientific expertise. She points out that scientific knowledge was becoming increasingly specialized and academic in the 1860s and that Twain's casual reading in scientific books written for consumption by a popular audience did not gain him entrance into the scientific community; she figures Twain for an outsider, not an insider, and backs up her argument by comparing the humor of educated scientific experts like West Point engineer George Derby (a.k.a. the madcap astronomer "John Phoenix") with amateurs like Twain:

> Writers with technical expertise tend to parody scientific discourse, play with scientific ideas, or experiment with science fiction. Their humor may debunk individual scientists or projects, but learning itself retains its positive value. By contrast, humorists without technical backgrounds—that is, amateurs—tend to ridicule science and the scientist as one. (Lee 29)

Lee puts Twain in the latter category, citing stories of his such as "How the Animals of the Woods Sent Out a Scientific Expedition," where scientists are

figured as insects who redraw the world's latitudes based on their finding a set of train tracks. Both science and scientists are made to appear woefully short-sighted and inadequate in this sketch (132).

Part of the disagreement about Twain's scientific knowledge is due to Lee's framing of the debate. She reads Waggoner as claiming scientific expertise for Twain, while what Waggoner really wrote was this: "A study of the Notebook, the Letters, the Autobiography, the official Biography, and several unpublished sketches, discloses a knowledge of science that, while not profound or in any sense rigorously accurate, was nevertheless inspired by enthusiastic interest, and was, for the average layman of the day, comparatively comprehensive" (359). This claim is a far cry from championing Twain as a lay scientist.

In fact, Waggoner is close to expressing an observation which helps resolve the issue of Twain's scientific experience: while Twain's formal scientific training was indeed nonexistent, his technical knowledge was impressive. Even in the mid-nineteenth century, there was a distinction between scientific and technical practice. Scientists and engineers recognized a difference in each other's methods, which boiled down to the use of theory: scientists used it; engineers did not (Bruce 150-155). Engineers employed (and still do to an extent) an instinctive, hands-on, "tinkering" approach to invention that used feedback from real work environments to direct changes and improvements to technology. Engineers, mechanics, and inventors were rarely college-educated, unlike most scientists of the time.

Twain's experience of science could in fact be better characterized as engineering knowledge. He gained extensive technical and mechanical know-how from his work as a printer's apprentice and as a riverboat pilot. A famous passage in Life on the Mississippi describes Twain's regretful transformation from a neophyte worshipper of the Mississippi to an expert pilot of the river. He claims that he came to resent the fateful sunset during which he looked at the river and could no longer enjoy its beauty as he had in his youth because it was now a complicated, technical map of shoals, submerged logs, and shallows (Marx 321). Thus, Twain evinced an awareness of having crossed from novice to expert status as a "river technician."

When Twain headed West with his brother Orion to try his hand at mining in 1861, he continued his technical self-education with experience in mine engineering and metallurgy. And in his later years, he turned to inventing, officially registering three patents (a board game, a self-pasting scrapbook, and "garment straps"). Finally, his celebrated and costly obsession with the Paige typesetter, and his installation of the first private telephone in America in his own home, are evidence of a lifelong enthusiasm for technological advancement. Overall, Twain's extensive knowledge of machines and their use is a *practical* knowledge, which is not as easy to document historically as theoretical knowledge and education, but which nonetheless is a noteworthy accomplishment for an American writer.

Clarifying the confusion between scientific and technical knowledge in both Lee and Waggoner's critiques produces a vantage point from which both

scholars' assessments of Twain's expertise are correct. Waggoner is right in pointing to Twain's readings as unusually scientific for a layman; Lee is right that Twain had no formal scientific indoctrination. It is Twain's extensive technical knowledge, allied traditionally with the working class and the self-made Jacksonian man, that explains both his fascination with science and technology (especially machines) and his satiric, outsider stance toward professional scientists.

At the time he wrote "The Petrified Man," Twain had already accumulated an impressive amount of this practical education—everything but the inventing phase. He was also subject to ethnoscientific influences from the media and the public discourse around him. Two major influences among these are the Civil War and the publication of Darwin's Origin of Species.

2.1 The Civil War

The Civil War did not have the effect that people often assume it did—boosting scientific prestige, progress, and funding through weapons research. In fact, argues Robert V. Bruce in The Launching of Modern American Science, the Civil War was a huge setback for scientific research. The weapons that debuted in the war, like the Gatling gun, were previous inventions, and no innovative war technology was developed in the early 1860s (276). Instead, Southern scientific research was set back for decades with the destruction of facilities and the leveling of the economy. Even Northern universities could not get their funding back up to normal levels and begin to move forward with the organization of new

programs until the mid-1870s.[16] Scientifically and technologically speaking, then, the war was a bust.

Twain was briefly involved in the war before deserting and heading west with his brother. He saw no fighting, but he communicated his discomfort with his role as a soldier in the burlesque "A Private History of the Campaign that Failed," which includes the eerie portrayal of a soldier whom Twain and a few others in his unit shot in the dark; he turned out to be an unarmed, non-uniformed stranger merely riding past their outpost (276-279). Twain's appreciation of the horrors that science and technology had wrought on modern warfare during the Civil War are also manifestly apparent in the "Sand Belt" chapter of A Connecticut Yankee in King Arthur's Court.

Twain was not alone in his developing awareness of the dangers of technology when bent to the purposes of American imperialism, which Twain strenuously opposed. H. Bruce Franklin documents the distribution of this fundamental unease throughout Twain's culture:

> As Twain wrote, American culture was generating a contradictory vision of the relations between industrial capitalism and modern warfare, one that exalted weapons technology as the path to peace and progress. American popular fiction was shaping the cult of the superweapon—an

[16] The one exception was the field of medicine, which seemed the least affected by the Civil War, and which was perhaps even advanced by the service of field doctors and by the abolition of slavery. Darlene Clark Hine describes the tangible gains for blacks in the south due to the medical schools established for blacks after the Civil War. In the 25 years following the war, 115 black women were certified as physicians, and by 1890 there were 909 black male doctors (210-211).

> invincible product of American ingenuity that would defeat all the backward and evil forces of the plant, thereby ending war and bringing about a global Pax Americana. (Franklin Traveling 166)

Twain's contemporary and fellow examiner of the impact of the machine on American society, Henry Adams, rendered both the awe and terror of the situation in his "The Virgin and the Dynamo" chapter of the Education of Henry Adams. Adams sees in the dynamo the destruction of everything pure and beautiful about civilization, as figured by the medieval virgin. Adams's imagery is more violent than, but akin to, the annihilation of the mysterious beauty of the Mississippi by Twain's technological knowledge of it—or, the cleaving of Huck Finn's idyllic raft by the bow of the steamboat in Huckleberry Finn (Marx 330). Twain was obviously responding to a cultural nervousness about technology and its easy adaptation to war, and he was responding to it as early as his desertion from the Marion Rangers.

2.2 Darwinism

In addition to the fall-out from the Civil War, another powerful scientific trope pervaded Twain's culture, and that was Darwin's theory of evolution. An editor for the Galaxy, which Twain wrote for, exclaimed upon the "universal drenching" of literature and journalism in American with Darwinian ideas during the 1860s and 1870s (Russett 11). Although Twain was a fan of Darwin's later Descent of Man, there is no evidence that Twain read the Origin, but most Americans did not. Instead, they relied on what they heard about it and what they read in the newspapers—including satiric reports and cartoons. American

Darwinism was, for the most part, filtered through Lamarckianism, which stressed an element of design in development that made evolution more compatible with traditional Protestant beliefs (Russett 10). It was also filtered through a strong bias toward organicism and individualism inherited from the American Romantics and Transcendentalists. Cynthia Russett argues that "romantic philosophy appealed to a more congenial scientific concept, that of the organism, against a less congenial one, the machine" (18). Thus, the idea of evolution as an organizing principle for all of life—especially when directed by a benevolent God, as figured by American Lamarckians—seemed a safe haven compared to the inhuman mechanisms of a clockwork Enlightenment universe.

However, evolution insinuated its own sort of mechanics into American scientific and social thinking, the fierce law of survival of the fittest. This was Huxley's nature, "red in tooth and claw," laid out in his 1893 Evolution and Ethics, a favorite on Twain's bookshelf. Russett describes the discomfort of American moral thinkers with the vanquishing of Newtonian mechanism by Darwinian evolution, which seemed like an "iron maiden presiding over endless panoramas of anguish and extinction" (3). Within Twain's lifetime, American writers were already dramatizing the cruel results of capitalist appropriations of survival of the fittest, or Social Darwinism: Upton Sinclair's The Jungle (1906) is one of the most notable instances of literary criticism of the inhuman aspects of Darwinism as social policy.

American Darwinism, in short, sets up a pattern of embracing the elegant story evolution told about the development of self-sufficient life, while

simultaneously shuddering at the cold amorality of a universe that was not designed but just *happened* at an astounding rate of attrition. This pattern shows up clearly in Twain's thinking, whether he came to it himself, borrowed it from Darwin and Huxley, or simply used parts of it to reinforce his own native cynicism about man's inhumanity to man. As mentioned above, Twain was sympathetic to the broad idea of evolution, as evidenced by his enthusiastic reporting of the conversations he had with his boarding-house philosopher friend McFarlane. His predisposition to believe in an evolutionary—and atheistic—model of life development, however, did not insulate the scientists who adopted Darwin's theory from his sharp, satirical pen. Twain satirized paleontologists at least three times—in "How the Animals of the Woods Sent Out a Scientific Expedition," "The Petrified Man," and 3,000 Years Among the Microbes—for jumping to evolutionary conclusions on the basis of scanty fossil data (Wilson 79). Twain celebrated the idea of biological determinism, reinforced by his belief that people really behaved no differently than animals, and perhaps worse. But at moments, the determinism of a Godless universe motivated merely by competition for resources seemed to knock the wind out of him. Contrary to many scholars' beliefs that Twain simply succumbed to despair in a mechanistic universe, however, his hoaxing practices show Twain developing a coping strategy that asserts self-determination without necessarily buying into any established belief system—including evolution. His strategy is laughter, which remains both the simplest and the most complex response to the rhetoric of social determinism. The laughter also creates a bond between Twain and his readers,

reasserting his, rather than science's, authority over them as their channel to the truth in the West. An examination of Twain's only scientific media hoax, "The Petrified Man" alongside his other media hoax, "Empire City Massacre" will show how these dynamics of self-determination and authority enter Twain's writings about science.

After studying "The Petrified Man" as a hoaxing event, I will use an OT-based approach to reconsider other, more traditional rhetorical analyses of Twain's hoaxing. And finally, I will develop a theory of Twain's use of laughter as a counter-move against the rhetoric of social control, showing how this changes our perception of his writings about science in his later works.

3. "THE PETRIFIED MAN"

Twain hired on at the Territorial Enterprise in the late summer of 1862 to fill in for the local editor, Dan De Quille (William Wright), who was visiting his family in Iowa. The first extant story Twain wrote for the Enterprise is a scientific hoax, "The Petrified Man," which was printed in the Enterprise on 5 October 1862. However, due to a fire in 1875 that destroyed the Enterprise's archives, the only remaining copies of the story are twelve reprints in other area papers, beginning with the San Francisco Evening Bulletin on 15 October 1862.

The hoax can be examined in its entirety, since it is relatively brief. This is the text of the first reprint of the hoax in the San Francisco Evening Bulletin on 15 October 1862:

> A petrified man was found some time ago in the mountains south of Gravelly Ford. Every limb and feature of the stony mummy as perfect,

not even excepting the left leg, which has evidently been a wooden one during the lifetime of the owner—which lifetime, by the way, came to a close about a century ago, in the opinion of a *savan* who has examined the defunct. The body was in a sitting posture and leaning against a huge mass of croppings; the attitude was pensive, the right thumb resting against the side of the nose; the left thumb partially supported the chin, the forefinger pressing the inner corner of the left eye and drawing it partly open; the right eye was closed and the fingers of the right hand spread apart. This strange freak of nature created a profound sensation in the vicinity, and our informant states that, by request, Justice Sewell or Sowell of Humboldt City at once proceeded to the spot and held an inquest on the body. The verdict of the jury was that "deceased came to his death from protracted exposure," etc. The people of the neighborhood volunteered to bury the poor unfortunate, and were even anxious to do so; but it was discovered, when they attempted to remove him, that the water which had dropped upon him for ages from the crag above, had coursed down his back and deposited a limestone sediment under him which had glued him to the bed rock upon which he sat, as with a cement of adamant, and Judge S. refused to allow the charitable citizens to blast him from his position. The opinion expressed by his Honor that such a course would be little less than sacrilege, was eminently just and proper. Everybody goes to see the stone man, as many as 300 persons having visited the hardened creature during the past five or six weeks.

Reader expectations can be recuperated from this hoax by the same methods I applied to Poe's first hoaxing attempt. First, I will examine Twain's writings about the hoax, what he claimed to have been trying to accomplish with it, and how he explained the construction of its rhetoric. Those claims will be compared to the contemporary reaction to the hoax in newspapers and memoirs. Then, I will reconstruct the popular science article of 1865, since changes are bound to have accrued to the genre since 1835, and this portrait will reveal the generic expectations newsreaders might have had when coming to Twain's hoax. Finally, based on these collected expectations, I will make changes to the filter of expectations as constructed so far to account for historical change.

3.1 Twain's analysis of "The Petrified Man" and "Empire City Massacre"

Twain wrote in detail about his motivations and strategy in constructing "The Petrified Man," and the best summary is his own:

> Now, to show how really hard it is to foist a moral or a truth upon an unsuspecting public through a burlesque without entirely and absurdly missing one's mark, I will here set down two experiences of my own in this thing. In the fall of 1862, in Nevada and California, the people got to running wild about extraordinary petrifactions and other natural marvels. One could scarcely pick up a paper without finding in it one or two glorified discoveries of this kind. The mania was becoming a little ridiculous. I was a brand-new local editor in Virginia City, and I fell called upon to destroy this growing evil: we all have our benignant, fatherly moods at one time or another, I suppose. *I chose to kill the*

> *petrifaction mania with a delicate, a very delicate, satire. But maybe it was altogether too delicate, for nobody ever perceived the satire part of it at all.* I put my scheme in the shape of the discovery of a remarkable petrified man. I had had a temporary falling out with Mr. Sewall, the new coroner and justice of the peace of Humboldt, and I thought I might as well touch him up at the same time and make him ridiculous, and thus combine pleasure with business. (Clemens "Memoranda " 858-859) [my emphasis]

Twain mentions many dynamics here that are significant for our study of hoaxing from the perspective of reader expectations. The key points, for our purposes, are as follows:

1. Twain was embarking on a project of social education or control by trying to "foist a moral" on his readers.
2. He intended "The Petrified Man" to be a satire, not a hoax—the principal difference here, both in Twain's thinking and as discussed in Chapter One, being that in a satire the audience is "in" on the joke, whereas in a hoax the reader is a victim of the joke. Thus, he felt his satire failed because readers were duped by the story and missed the satiric bent.
3. The dual butts of Twain's "satire" were the Virginia City medical examiner, Judge Sewall, whom Twain had an unspecified grudge against; and, a recent "petrifaction mania."

This "mania" was a supposed slew of articles in newspapers from all over the country about the finding of fossils and petrified plants and even people.

Recent attempts to reconstruct Twain's claims by a survey of contemporary media have not yielded evidence of this "mania." However, it is well known that much of the Enterprise and of the other California and Nevada papers was dedicated to geologic and mining news, since readers were mostly miners. Twain's contemporary hoaxer Dan De Quille wrote at least one hoax and two humorous stories about petrifaction. Judith Yaross Lee claims the West was a particularly fertile ground for humor about paleontological finds: "The goldrush and railway construction excited interest in rock-collecting and other forms of amateur geology and mineralogy, and descriptions of fictitious fossils began to constitute a subgenre" (Lee 141). Catalysts for this "excited interest" may include reports from government scientific expeditions like the Wilkes Expedition and the Owen Survey, whose fossil finds were being debated as either supporting or refuting Darwin's theory of evolution. So, there was likely some basis for Twain's exasperation.

Twain recorded his perceptions of readers' reactions to "The Petrified Man." In the "Memoranda" article for the Galaxy, he makes strong claims about the dissemination of the hoax:

> As a satire on the petrifaction mania, or anything else, my Petrified Man was a disheartening failure; for everybody received him in innocent good faith, and I was stunned to see the creature I had begotten to pull down the wonder-business with and bring derision upon it, calmly exalted to the grand chief place in the list of the genuine marvels our Nevada had produced. I was so disappointed at the curious miscarriage of my scheme

that at first I was angry and did not like to think about it; but by and by, when the exchanges began to come in with the Petrified Man copied and guilelessly glorified, I began to feel a soothing secret satisfaction; and as my gentleman's field of travel broadened, and by the exchanges I saw that he steadily and implacably penetrated territory after territory, State after State, and land after land, till he swept the great globe and culminated in sublime and unimpeached legitimacy in the august, "London Lancet," my cup was full, and I said I was glad I had done it. It think that for about eleven months, as nearly as I can remember, Mr. Sewall's daily mail contained along in the neighborhood of half a bushel of newspapers hailing from many climes with the Petrified Man in them, marked around with a prominent belt of ink. I sent them to him. I did it for spite, not for fun. He used to shovel them into his back yard and curse. And every day during all those months the miners, his constituents (for miners never quit joking a person when they get started), would call on him and ask if he could tell them where they could get hold of a paper with the Petrified Man in it. He could have accommodated a continent with them. I hated Sewall in those days, and these things pacified me and pleased me. I could not have gotten more real comfort out of him without killing him. (Clemens "Memoranda" 859-860)

In 1937 DeLancey Ferguson, in what was probably the first scholarly treatment of the hoax, did a survey of the London Lancet for three years following the publication of "Petrified Man" and found no mention of it in the paper.

Likewise, Ferguson finds no mention of it in the Eastern magazines he surveyed (Ferguson 193). Twain was probably exaggerating the dissemination of his hoax, although locally it created a stir, as we will see in the next section.

What is really interesting about this hoax, however, is Twain's claim that the piece was in fact a failed satire. His analysis of its "failure" provides insights into the expectations of his readers, as he constructs them, and Twain is certainly a member of his own readership in this instance, being a pioneer and placer miner in Nevada. Twain wrote first of all that he expected the inaccuracies of "Petrified Man" to reveal it:

> From beginning to end the 'Petrified Man' squib was a string of roaring absurdities, albeit they were told with an unfair pretence of truth that even imposed upon me to some extent, and I was in some danger of believing in my own fraud. But I really had no desire to deceive anybody, and no expectation of doing it. I depended on the way the petrified man was *sitting* to explain to the public that he was a swindle. (Clemens "Memoranda" 859)

Twain goes on to point out that locals were provided with further clues to the fake, such as the fact that there were no "people of the neighborhood" in Gravelly Ford, which was a five-day ride into the wilderness and populated only by "a few starving Indians, some grasshoppers, and four or five buzzards out of meat and too feeble to get away" (859).

However, Twain contradicts his own claims of innocence somewhat as he admits the "unfair pretence to truth" he employed. Elsewhere in the same article,

Twain once again confesses that he worked at making the “Petrified Man” sound like an authentic news article: “So I told, in patient, belief-compelling detail, all about the finding of a petrified man at Gravelly Ford” (859). And when he wrote to his brother Orion on 21 October 1862, he made the imposture of his “squib” sound quite deliberate:

> (*Between us*, now)--did you see that squib of mine headed "Petrified Man?" It is an unmitigated lie, made from whole cloth. I got it up to worry Sewall. Every day, I send him some California paper containing it; moreover, I am getting things so arranged that he will soon begin to receive letters from all parts of the country, purporting to come from scientific men, asking for further information concerning the wonderful stone man. If I had plenty of time, I would worry the life out of the poor cuss. (Clemens Mark Twain's Letters 242)

There is no evidence that Twain ever “arranged” for corroboration from scientists. But the claim shows him prepared to provide outside support for the hoax, which would not have been required if the story were simply a satire that flopped. Further, Twain published a follow-up piece in the Enterprise in November with the testimony of individuals who had been to see the “stone mummy” on display (Clemens Early Tales and Sketches 157). So, there are several solid reasons to doubt Twain’s protestations that he did not intend to create a hoax. But his commentary on what makes the difference between a telling satire and a good hoax are instructive for our purposes of reconstructing reader expectations because Twain was savvy to what is now called the

psychology of reading—the cognitive process through which readers approach a text and interpret it. We will consider each of his insights through the lens of the reader expectations that they will affect.

In Twain's analysis of his early media hoaxes, "The Petrified Man," and "The Empire City Massacre," he makes clear why he thinks he "accidentally" created hoaxes instead of satires. "The Petrified Man," as we have seen, was intended to satirize a popular-science mania over fossils and petrifaction; "The Empire City Massacre" was a horrifying report of a multiple murder/suicide that, Twain, argues, was originally designed to criticize a shifty policy of misreporting stock values by mining companies, something akin to the recent Enron scandal, which was prevalent in California and Nevada in the 1860s. In the hoax Twain claims a man driven mad by his losses on the stock market kills his entire family, cuts his own throat, and then rides into town and collapses in front of a saloon full of people, brandishing the scalp of one of his children. The hoax was apparently believed locally and resulted in a media furor, once it came out that Twain had faked it. According to Dan De Quille, Twain's fellow writer and roommate at the time, Nevada news editors called the story a "cruel and idiotic hoax," and California news editors threatened never to reprint another Enterprise item if J.T. Goodman did not fire Twain. Twain lost a great deal of sleep until De Quille reassured him that the whole thing would blow over eventually, which it did (Wright Reporting 72).

In his "Memoranda" for the Galaxy, Twain chalks up the phenomenon of his "satires" being read as hoaxes to three unanticipated factors: readers'

extremely high valuation of sensation and novelty, the guiding principles by which his readers read science news, and the structure of that news reading activity. All these observations are corroborated by contemporary reports of reactions to his hoaxes and anticipate current findings in reading psychology. These reports will be cited to justify modification of the ranked filter of science newsreading expectations. A final adjustment to the ranking will come through an examination of the public reputation of both the Enterprise and Twain himself, which complicates the assumption made to this point that newsreaders expected truth.

3.11 High ranking of Sensation and Novelty

Twain commented extensively on the power of the "wonder-business" of science to overwhelm readers' critical faculties. He claimed that this phenomenon, equivalent to a high valuation of the novelty and sensation, caused the "moral" of his satires to be missed. In the "Memoranda" he reflects, "…we never read the dull explanatory surroundings of marvellously exciting things when we have no occasion to suppose that some irresponsible scribbler is trying to defraud us; we skip all that, and hasten to revel in the blood-curdling particulars and be happy" (861). As to readers overlooking of the clues he left in his "satires" and reading them as hoaxes, Twain cautions, "One can deliver a satire with telling force through the insidious medium of a travesty, if he is careful not to overwhelm the satire with the extraneous interest of the travesty, and so bury it from the readers' sight and leave him a joked and defrauded victim, when the honest intent was to add to either his knowledge or his wisdom" (859).

Although it would be hasty to attribute any sort of "honest intent" to Twain's "satires," he makes it clear that the powerful sensational and novel aspects of a petrified man and a bloody massacre leave vivid images in readers' minds that are difficult to replace with subtle arguments about an over-reliance on Darwinian paleontology or underhanded dividend cooking. About the "Empire City Massacre," Twain laments, "To drop in with a poor little moral at the fag-end of such a gorgeous massacre, was to follow the expiring sun with a candle and hope to attract the world's attention to it" (861). Indeed, the "moral" chastising the dividend-cooking companies appears only in the last six sentences of the lengthy piece after some relatively dry biographical details about the murderer.

That "expiring sun" of novelty and sensation was Twain's lifelong whipping boy, according to Pascal Covici in Mark Twain's Humor. In that study Covici explicates Twain's "use of the hoax to ridicule the reader's penchant for collecting thrills" (150). He claims that Twain consistently used forms like the hoax and the tall tale as deflating pins for the balloon-like sensations of the "wonder-business" of popular science and any other mania that grabbed readers' attention through the media. Covici argues that Twain felt American's slavish love of sensation was blinding them to the very real and unglamorous problems of poverty, racial inequality, and exploitation of ethnic minorities in the post-bellum era (150-151). This social function of the hoax will be discussed in the final section of this chapter with respect to Twain's activism.

3.12 Process of reading

Twain identified another major cause for the failure of his "satires." He claimed the exposing details he buried in his "satires" did not surface into his readers' consciousness because his readers were reading too fast and simply missed them. "Skimming" as a strategy to optimize expenditure of time and effort during reading is well-documented in recent studies of scientific readers. Charles Bazerman found patterns in the way physicists skipped over parts of articles in their field to select the parts that were most useful to their own research in "Physicists Reading Physics." Davida Charney got similar results in her read-aloud protocol study of biologists reading Stephen Jay Gould's article "The Spandrels of San Marco."

Skimming has actually been treated as an OT-type constraint-satisfaction process by Bertrand Gervais, a reader-oriented critic. He describes the process Twain witnessed as a continual tension between two competing constraints, progression and comprehension. Progression expresses the desire of the reader to get through the material as quickly as possible. Comprehension expresses the reader's desire to understand the details of what s/he has read. The reading activity proceeds as a negotiation between these two constraints, with reading generally proceeding as fast as will allow the reader to glean what s/he wishes to learn from the text (Gervais 857).

Twain observed this progression/comprehension dynamic in the reading of his "satires" and attributed their "failure" in large part to readers skimming. In the "Memoranda," while discussing a recent "agricultural" satire he wrote that

was taken as the real thing, he theorizes, “Shall I tell you the real reason why I have unintentionally succeeded in fooling so many people? It is because some of them only read a little of the squib I wrote and jumped to the conclusion that it was serious, and the rest did not read it at all, but heard of my agricultural venture at second-hand” (858). In his discussion of “Empire City Massacre,” Twain reports watching readers read the story just as Poe spied on readers reacting to the “Balloon-Hoax.” Twain describes sitting at breakfast and observing a couple of farmers reading his article in a spontaneous early read-aloud protocol experiment. "I saw that the heedless son of a hay-mow was skipping with all his might, in order to get to the bloody details as quickly as possible; and so he was missing the guide-boards I had set up to warn him that the whole thing was a fraud" (861).

Naturally, as we have witnessed with Poe’s hoaxes, a hoaxer, unlike a satirist, relies on just this reading habit twice over: first, when s/he uses readers’ hasty judgments to secure their confidence in the hoax; and, later, when s/he encourages re-reading or simply confesses the hoax in order to produce the *gestalt* that is the hallmark of the hoax experience. The nice fit of this hoax strategy with Twain’s lament about readers’ carelessness seems further indication that he was crafting hoaxes when he wrote “The Petrified Man” and “Empire City Massacre.” His tears over his failed “satires” appear increasingly crocodilian.

Half of Twain’s observation about his readers’ reading styles attributes the failure of his “satire” to readers skimming too quickly to catch his “guide-boards.” Naturally, the other half of his observation has to do with what readers

were looking for in their headlong rush, what they were skimming over the rest of the text in order to reach. This has to do with industrial modes of reading news.

3.13 Newsreading

Twain also noticed that people consistently skipped to certain parts of his stories. As he pointed out with the "Empire City Massacre," his readers were skimming to find the "bloody details" and the "blood-curdling particulars." In a recent study of newsreaders, Berkenkotter and Huckin found that readers indeed do not read linearly but skim for information: "Because the text schema is quite standardized, experienced readers know where to look for certain information and can skip around quite efficiently" (31). They cite Van Dijk's (1986) empirical study of the topics of a news article in the order they generally appear: first, the summary, which consists of headline and lead; then the news story, which proceeds with the main event, details of main event, background, consequences, comments, etc. Berkenkotter and Hucken claim that repeated experience with this form allows readers to treat it hypertextually, organizing their reading experience non-linearly in response to their desire to maximize novelty, or new information.

The form of the modern news article differs slightly, of course, from the Popsci. criteria that we have observed in action. The modern article lacks the degree of "mystery" in its opening that the 1835 science news articles contained; the earlier articles also put background before the details of the main event in the form of failed attempts at discovery or understanding in the past; finally, the commentary in the early science articles often contains speculations that modern articles eschew in the interest of preserving an objective stance. However, as we

will see in this chapter, the genre of the science news article was changing in Twain's time to conform more closely to the pattern Van Dijk observed.

If the form of the news article has changed over the last 150 years, however, the principle of the reader learning the form and then using it to adapt the reading experience to his/her goals remains the same. As discussed in Chapter Two, Rolf Zwaan has found that labeling the same text either a "story" or a "news article" for different sets of readers changes the way these groups read. His results showed that readers who believed they were reading news read for the details—the "who-what-when-where-why"—and had better recall for these details, and worse recall for fine details of language and presentation, as compared to readers who thought they were reading a fiction story.

Twain recognized that this structured reading activity was important for perpetrating a hoax. He noted that leaving his revelatory clues or "moral" until the end of the article caused it to fail as a satire because "the reader, not knowing that it is the key of the whole thing and the only important paragraph in the article, tranquilly turns up his nose and leaves it unread" (Clemens "Memoranda" 858). Twain evinces awareness of a front-loaded structure for news articles in his time. Since he had already had a similar problem with readers missing the "fine print" of the revelatory details of the "Petrified Man," one would think he would have done something to foreground the revelatory details of "Empire City Massacre" if he genuinely intended to make a satire rather than a hoax. Dan De Quille claims in his memoirs to have suggested this to Twain during the composition of the story (Wright Reporting 172). According to De Quille, Twain

was defensive in the face of these suggestions, claiming that the small inconsistencies he had sprinkled throughout the article—like calling the murderer a "bachelor" even though he killed his wife and children, and mentioning a pine forest where locals should have known there was desert—were all "plain enough," and he refused to foreground the "moral" about dividend cooking that resided at the end of the story (171). It seems clear that Twain intended to exploit what we now understand as a familiarity with the news article format in order to make "Empire City Massacre" seem like a "real" news story to his readers—in order to write a hoax, not a satire.

Since we have discussed Twain's farmers reading his "Empire City Massacre" over breakfast, we should consider how progression/comprehension and the familiar structure of news reading might have interacted to produce belief in the hoax. The news-reading strategy operates on a similar level as progression and comprehension, since it determines which parts of the text are admitted to the interpretive process. Thus, we can argue for our news-reading strategy (News), Progression, and Sensation all driving the reading process at the expense of Comprehension (of details), as depicted in Table 12.

Table 12: Skimming guided by news-reading conventions

	Sensation	Progression	News	Comprehension
✓ True				*
False	*	*	*!	

The "False" judgment represents a reading that would have—Twain believed—led the farmers to *understanding* Twain's satire about dividend

cooking rather than missing the tell-tale clues and being hoaxed. In this fantasy case, the violation of Sensation would indicate that what is sensational is of low value to the reader. The violation of Progression would mean the reader slowed down to understand the details of the story; and the violation of News would imply a strict linear reading. Since none of these statements matched the farmers' actual expectations (in Twain's view), they result in a fatal violation. An interpretation of the story as "true," in spite of lack of comprehension of all of the text, wins out. This table thus represents Twain belief about how progression/comprehension and news skimming interacted to make his readers jump to the wrong conclusion while reading his hoaxes.

3.14 Medium

Twain did not comment on the effects of medium and reputation on the reception of the hoaxes, but they are crucial to this analysis because of the previous importance of readers' attitudes towards newspapers as disseminators of truth. Basically, we have a conundrum. Readers knew that the Enterprise often printed tall tales and falsehoods. On the other hand, they relied on the Enterprise for real mining news and true details of events and scandals in the Nevada Territory. What, then, were reader expectations of the medium when they came to read a story like "The Petrified Man"?

The Enterprise was "the largest paper in the West of the gold and silver rushes," according to Judith Yaross Lee (Lee 129) although the Great Fire of 1875 wiped out the newspaper's records, so circulation figures from that era are unavailable. It was the major paper in Virginia City and was read by miners,

businessmen, politicians, and their families. It often courted its women readers with items specifically "for the ladies." The local miners relied on it for news of what was happening in other mines on the Comstock lode and for new claims and patents (Lee 129; Mott 298). Politics was also big news, as Nevada's legislature was making a bid for Statehood. Twain's brother Orion was the Territorial Secretary, and Twain himself covered the legislative sessions from 1862-1864.

However, the Enterprise was also known for having rather young bachelor editors who enjoyed drinking their "reporter's cobblers" and playing practical jokes on each other. Henry Nash Smith sums the situation up in this fashion: "Nevada journalism of the 1860's was nonchalant and uninhibited, and a report of the most commonplace event was likely to veer into fantasy or humorous diatribe" (Clemens MT of the Enterprise 7). Humorous stories, tall tales, and comic takes on local news filled in the gaps in the "real news" in every issue. Dan De Quille and Twain both used the paper to get in jabs at each other and at local politicians whom they did not like, as in the case of Twain using "The Petrified Man" to get back at Judge Sewall for some unrecorded offense. Twain was practically run out of town on a rail because of a satirical article he wrote about the Carson City Sanitary Ball in 1864, which offended the powerful organizers (Clemens MT of the Enterprise 27).

Frank Luther Mott in the History of American Journalism argues that the editors of the Enterprise knew it was widely read and therefore used its substantial subscription as a platform to launch tall tales and hoaxes into the Eastern media through the practice of clipping (Mott 289). Certainly, from the evidence of the

eastward migration of De Quille's hoaxes, this claim seems to be justified. How then, could readers of the Enterprise depend on its journalism at all? Twain's colleague on the paper, Dan De Quille, depended on his readers to use their common sense to distinguish what was real from what was fake; of course, he was always pleased when they could not manage to do so (Lee 142). Twain wrote many anonymous pieces for the local columns of the Enterprise that mixed together fiction and fact, so it appears he also left the burden of proof on the reader many times.

Knowing all of this, Twain claimed a final reason he felt his "satires" failed, and "It is because, in some instances, the reader is a person who never tries to deceive anybody himself, and therefore is not expecting any one to wantonly practise a deception upon him" (Clemens "Memoranda" 858). Again, he supports the basic tendency of news readers towards credulity when he says in the "Empire City Massacre" analysis quoted above, "…we never read the dull explanatory surroundings of marvellously exciting things when we have no occasion to suppose that some irresponsible scribbler is trying to defraud us" (Clemens "Memoranda" 861). Twain seems to support De Quille's reading of readers' trust in the Enterprise. They needed the information the paper provided, and so they trusted what they read unless signaled to do otherwise by humorous commentary or insider knowledge as a local (e.g. that there were no "neighbors" around Gravelly Ford).

The local readers were miners, and often the difference between them "striking it rich" or not came down to whether or not they acted swiftly on new

information, whether they received it through rumor or in the pages of the Enterprise; if they did not, someone else staked the big claim first. They were a group whose urgent need for novel information necessitated a level of trust in Nevada journalism that might not otherwise be warranted. Interestingly, David Perlman finds this mercenary urgency is still a major contributor to instances of hasty or inaccurate reporting of science news in the United States (253).

In addition to a trust in the Enterprise forced by an urgent need for new information, there could be a much more basic reason that readers continued to believe what they read, one that gets back to Twain's comments that "we have no occasion to suspect" someone is hoaxing us. Grice's maxim of Quality acts as a constraint on all speech activities, including the reading of newspapers. The maxim of Quality says to tell the truth, and to assume others are too, unless you receive overt signals of flouting of the maxim—like an exaggerated, sarcastic tone of voice, eye-rolling, or the name "Mark Twain" at the head of an article. In addition to his insight into the psychology of reading, Twain seems to have tapped into a very basic operating principle of linguistic pragmatics—tapped into it, and exploited it, in the case of "The Petrified Man" and his other unsigned hoaxes.

3.15 Twain's reputation as an author (Authority)

Another peripheral issue to Twain's assessment of the reaction to the"Petrified Man" hoax is his readers' expectations about his behavior as an author at this juncture in his career. In fact his career was just getting started. "Petrified Man" is the first confirmed piece of journalism that Twain wrote as a staff newspaper reporter. We know he wrote items for the local column around

this time, many of them sarcastic. However, his legislative reporting was exact and trustworthy, if also occasionally critical and humorous (Clemens MT of the Enterprise 9).

In February of 1863, just four months after the publication of "Petrified Man," Twain began using the pseudonym he would use for the rest of his career. After that his readers had a heuristic for helping them decide if Authority, or the reputation of the author, would have a positive or negative valence in their decisions about the truth of items in the Enterprise. Twain signed his serious political pieces Sam Clemens and his humorous bits Mark Twain (Clemens MT of the Enterprise 9). But plenty of his articles were unsigned, like "Petrified Man," leaving the burden of deciding the values of both Medium and Authority on the reader.

3.16 Summary of Twain's portrait of his readers' expectations

Twain, like Poe, seemed to think in terms of what readers expect or anticipate when he analyzed what went "wrong" with his "satires." Therefore, he makes the following significant contributions to our understanding of reader expectations of science journalism as practiced in the West:

- Novelty and Sensation, representing the "wonder-business" of popular science, are perceived by Twain as the highest-ranked reader expectations, thereby making them salient targets for his satirical attacks.
- The needs of core readers—miners and scientific expeditionists like Cope—for novel information may corroborate a ranking of Novelty above

Medium for miners who knew the Enterprise lied but who could not afford to pass up any tip on a new prospect.

- In signed pieces by Mark Twain/Sam Clemens, Authority ("The reputation of the author holds") develops a schizoid status, as each name is associated with a different style of reporting: humorous/lying for Twain, and straight-shooting for Clemens. Of course, many pieces, like "The Petrified Man," were unsigned altogether.
- Grice's maxim of Quality may interact with Medium and Authority to actually *encourage* credulity, as truth-telling is the default mode of human communication (if it were not, nothing would ever get accomplished between people and lying would have no stigma attached to it).
- The competing constraints of Progression and Comprehension govern the hoax-reading experience and may work in the hoaxer's favor due to readers' skimming habits. The competition between progression/comprehension may for some readers indicate a high ranking for Sensation and Novelty, but a low ranking or even a deactivation of Detail and Internal Coherence, due to skipping these background details to get to the "juicy parts."
- A news-specific reading pattern may interact with the progression/comprehension dynamic to facilitate hoaxing and frustrate satire.

Twain's observations will be tested against the reactions of other readers of his hoaxes. Then, the filter of science news reading expectations will be modified to account for the observable innovations in Twain's scientific media hoaxing.

3.2 Contemporary reaction to "The Petrified Man"

When Twain wrote in the "Memoranda" that "everyone was receiving [the petrified man] in innocent and good faith," he was exaggerating. Even if they ignored the obvious nose-thumbing of the unfortunate petrifactee, several of the papers who reprinted it did so tongue-in-cheek. In Early Tales and Sketches, Branch *et. al*. note that a majority of the 12 reprints were introduced straight-faced (158). Of the five reprints I was able to locate in the Berkeley periodicals library, three were introduced ironically:

- The San Francisco Evening Bulletin introduces the story with this commentary: A WASHOE JOKE.—*The Territorial Enterprise* has a joke of a "petrified man" having been found on the plains, which the interior journals seem to be copying in good faith. Our authority gravely says:…"
- The Sacramento Bee on 16 October 1862 prefaces the story, "THAT PIECE OF PETRIFIED HUMANITY.—The Enterprise, published in Virginia City, has the following, probably a hoax, about the discovery of a petrified man near Gravelly Ford, in Nevada Territory. It says…."
- The San Francisco Alta California for 15 October 1862 quips the following: "A PETRIFIED MAN IN NEVADA TERRITORY. –The Virgina City *Enterprise* gets off the following sell about the discovery of a petrified man near Gravelly Ford, in Nevada Territory."

Twain's protestations of universal hoodwinking are obviously exaggerated. In addition to the overt criticism by the reprinting media, readers and editors most likely knew that the Enterprise routinely published humorous squibs and tall tales alongside legitimate news items.

There is little doubt that San Francisco's media encouraged an image of the city as more savvy and cosmopolitan than the upstart mining camps in the Nevada territory. This attitude is apparent in the introductory commentary on "The Petrified Man" in reprint in the San Francisco Evening Bulletin, whose editors distinguished themselves and their readers from the "interior journals" who were "copying it [the joke] in good faith." I will consider their reading of the hoax and then their projection of how their readers would read it.

The editors clearly rank highly the reputation of the medium—with a definite negative valence—in their decision to discount Twain's tale. So Medium wins out over the Novelty and Sensation of a petrified human being for these editors. It is safe to assume that they were not skimming the article, as they picked up the exposing details of the mummy's posture and recognized the story for a hoax. Internal Coherence would therefore be highly-ranked for these editorial readers, too, because the impossibility of a man being petrified while thumbing his nose is what gives the story away.

Some of the usual expectations do not enter into the editors' interpretive decision. For example, there are no foreign authorities quoted, so Foreign is a moot point. These editors' commentary gives no indication of how plausible they found the petrifaction of a man, in general, so Plausibility may or may not have

entered into their interpretive process. The Plausibility clues Twain left for Virginia City locals—like the lack of "neighbors" at Gravelly Ford—would not help editors who lived in San Francisco. By contrast, for the editors of the Auburn Placer Herald, Plausibility must have been satisfied, or at least powerfully outranked by other expectations, since they reprinted the story as real news; the Placer Herald editors could have employed either of these rankings of Plausibility, since they make no comments when reprinting "The Petrified Man."[17]

Finally, the option of the editors of the Evening Bulletin's respecting Twain's adherence to Popsci. criteria in the original story are impossible to judge because that article is not extant. Chances are good that the body of the story was reproduced relatively accurately in the Evening Bulletin; this has been determined through comparison with the other reprints and Twain's own reprint of the story in Sketches New and Old (Clemens Early Tales and Sketches 157). However, the original heading of the story and perhaps some concluding commentary would not have been reprinted by the Bulletin and are thus unavailable for analysis.

So, the reconstruction of the editors' rejection of "The Petrified Man," based on their commentary appears in Table 13:

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[17] The editors of the Placer Herald made no overt commentary, but they did entitle the article "Petrified *Men*," which presupposes several findings and thus may indicate the editors found the discovery plausible because of prior experience with petrifactions. Of course, the substitution of "Men" for "Man" could also be the result of a sloppy reading of the text or a typo, so any definite judgment on it would be hasty.

Table 13: Decision of rival editors about "The Petrified Man"

	Medium	Internal Coherence	Novelty	Sensation
True	*	*!		
✓ False			*	*

Even though deciding that the "Petrified Man" is a "false" science report requires the editors to deny that novel and sensational scientific reports are usually true, they are more concerned with the reputation of the Enterprise and the internal consistency of the story. The "!" by the violation for Internal Coherence, indicating that it is the fatal violation in the contest between the two interpretations, is a little misleading, for in fact, there is not enough data to determine which was the absolute deciding factor for the editors—the internal inconsistencies of "The Petrified Man," or simply the story's appearance in a local-yokel "interior journal." The vertical dotted line between the expectations indicates this indeterminacy. The convention in Optimality Theory is simply to indicate the "fatal violation" as far right as possible in a given level of rank, thus indicating the very first or weakest violation (*) that is enough to knock a candidate interpretation out of the running.

Progression and Comprehension are harder to represent because they have to do with the allocation of attention *during* the reading process. The other expectations figure in *post hoc* judgments after reading is complete. While the continual activity and tension between Progression and Comprehension determine what gets admitted to the interpretive process as data, and thus produce an indirect effect on decisions about truth-value, Progression and Comprehension operate at a

different level than our other interpretive expectations.[18] They vary continually with a reader's emotional and mental states and thus are subject to factors like impatience, excitability, and fatigue. As a result of the powerful but oscillating nature of Progression and Comprehension, all that can be determined about them from these editors' readings is that during the phase of their reading experience where they were scanning the "details of main events" part of the text, Comprehension was temporarily ranked above Progression in a successful effort to sort out the tangled-up details about the mummy's posture.

There are two models of reader interpretation inhering in the Evening Bulletin's comments that are not visible unless we focus on recuperating reader expectations from the textual evidence. In addition to the editors' reading of the hoax, the Bulletin also presents a projected model of what the editors thought their readers expected, similar to the one Twain presented in his analysis of why his "satires" failed, or to Poe's model of antebellum newsreader expectations in his analysis of the success of Locke's "Moon Hoax" versus "Hans Phaall." Simply put, while the San Francisco editors believed their readers to share their parochial disdain for the shoddy journalism of the Enterprise, they feared along with Twain that their readers' excited desire to progress through all the pertinent points of the story (perhaps motivated by a high-ranked value for Sensation and

[18] Two exceptions to this observation are perhaps Sensation and News, which may operate selectively during the reading experience. A highly ranked expectation of sensation or titillation may push progression ahead of comprehension as readers excitedly scan the text for vivid adjectives and "bloody particulars"; similarly, skimming according to newsreading conventions may work with progression to reduce comprehension of embedded details.

Novelty as well as a preference for Progression over Comprehension) would cause them to read too quickly and miss the exposing details. We know this because the editors of the Evening Bulletin interpolated a bracketed exclamation mark "[!]" right after the description of the mummy's posture when they reprinted "The Petrified Man," so that readers who had been skimming would stop at the mark, go back, and reevaluate the position of the petrified man to see that he was thumbing his nose at them. In short, the editors were educating their readers to read as the editors had read, to rank their expectations the same. But the fact that the editors felt the need to educate their readers in this fashion indicates that the editors believed their readers read differently and too quickly. The editors' model of their readers' expectations is depicted in Table 14:

Table 14: Editors' projection of their readers' interpretive process

	Sensation	Progression	Comprehension
✓True		*!	
False			*

In the editors' view, their warning sign would force the readers to stop their headlong rush and to re-read the details of Twain's story carefully enough to comprehend the paradox of the petrified man's posture.[19] The only evidence at this point that Sensation and Progression work together comes from Twain's report, detailed above, of watching his readers rush through his stories because they are bent on "collecting thrills" as Covici calls it, or "hastening to revel in all

[19] There is another consequence of Comprehension losing this competition, and that is the deactivation of Internal Consistency and Detail, or internal consistency and the evidentiary weight of detail, as working expectations, because a reader's ability to judge the internal consistency of a story is severely hampered by skimming and missing the details which may or may not add up.

the blood-curdling particulars" as Twain himself described it. Dan De Quille seemed to share Twain's assumption, as he cautioned Twain to include more clues to the satire in the story (which Twain suspiciously refused to do).

So, Twain's observations about the way his readers read science news—that they expected sensation and novelty, and that they skimmed using their knowledge of news conventions—seem to be corroborated by the editorial commentary accompanying the reprinting of "Petrified Man." The editorial comment also offered an alternative reading, as compared to Twain's projected miner readers, to the relationship between Medium and Novelty; that is, we have evidence now that for at least one group of readers, the negative reputation of the Enterprise trumped the desires to "keep up with the times" and take novel scientific reports at face value. Now, a portrait of how science news had changed since Poe's time will give us an idea of what Twain's readers expected to find when they opening the pages of the Enterprise.

3.3 The American popular science genre in 1865

The "Petrified Man" adheres to the rhetorical form we have been studying in Poe's and Locke's hoaxes (the Popsci. criteria) in several ways. First, the report plays on readers' actual experience with fossilization and petrifaction and on reports of these things in the media (Novelty, Plausibility); further, it purports to describe a petrified man, which is a unique and suggestive discovery, especially in light of contemporary debates over the age of the earth and the evolution of humans on it (Sensation). The story also includes painstaking detail in the description of the wooden leg and the attitude of the various limbs of the body

and includes technical jargon like "limestone sediment" (Detail). There are certainly humorous colorings to some of the descriptions, including the chiming phrase "stony mummy" and the irony of "refused to allow the charitable citizens to blast him from his position." But these elements are not out of keeping with the Enterprise's usual style of reporting actual events and discoveries in the Nevada territory in a joking manner, as discussed above.

We notice that the story is introduced without the typical "mystery" opening, though the mystery rhetoric is invoked later in the story with the phrase "strange freak of nature." Is this an early instance of the "who, what, when, where, why" rhetoric of the news article gradually phasing out the older, more elaborate style of the 1835 popular science article? It is of course impossible to determine this without a wide study, but a sample of eight contemporary journals, a count of the type of articles they contained, and a brief rhetorical analysis of the style of those articles may help suggest directions for future inquiry.

For this sample, as with the 1835 sample, I tried to select newspapers local to the Nevada/California region or Eastern papers which De Quille and/or Twain were known to read. I have included the American Journal of Science and the Scientific American again for comparison with their earlier manifestations, to see what changes might have arisen the previous thirty years (an immediate observation is that both journals were publishing more science by volume in 1865 than in 1835). A few category labels have also changed. There were no meta-commentary articles or poems in the Popular Science category in this survey, and I have added an Almanac sub-category under Popular Science to reflect frequent

weather, tide, and astronomical reports appearing in the daily papers mid-century. Under Popular Technology, I lumped Educational and How-Two articles together since most Educational articles at this time were about how to build or do something rather than general histories. Tables 15 and 16 present the results of the survey.

Table 15: 1865 media surveyed with number of science articles per issue

Magazine/Newspaper	Total Science Articles
Am. Journal of Science	150
Scientific American	117
SF Daily Examiner	26
NY Sun	17
NY Times	17
St. Louis Missouri Reporter	8
Sacramento Transcript	5
Virginia City, MT, Post	2

Table 16: Distribution of categories of science articles across 1865 media sample

Major category	Sub-category	Totals for sub-categories*	Sub-category % of total science articles	Major category % of total science articles
Pop. Sci.	Ad	24	25%	35%
	Blurb	1	1%	
	Spectacle	5	5%	
	Almanac	4	4%	
Pop Tech.	How-to/Educ	2.4	3%	55%
	Blurb	3.9	4%	
	Ad	41.3	43%	
	Invention	3.7	5%	
"Pure" sci.	Discovery	.2	.2%	10%
	Education	3.7	4%	
	Joke	2	2%	
	Observation	.8	.8%	
	Review/Bio	2.6	3%	

* Totals for AJS (semi-annual) and Scientific American (weekly) have been adjusted to be comparable with the dailies.

Because there is such a discrepancy in the circulation of the newspapers/journals considered, the totals by journal merely tell us that small town papers carried less science news than big city papers, an unremarkable result. However, the totals by category yield a snapshot of some changes in science journalism since 1835.

In 1865 Popular Technology was still by far the best-represented category in science news, and ads account for an even higher percentage of the total number of science articles included in each paper/journal. This could simply be because papers were carrying more ads in general as cities expanded. There was a 1.5% increase in jokes and a 1.7% increase in announcements of spectacles or exhibitions since 1835, and both of these increases, while inconclusive, are consistent with the upsurge of Barnum and other medicine-show type entertainments since the 1830s. There was a marked drop-off in general educational items at the hard science level (10.8%), and this could reflect the increasing professionalization of science media, including a general journal like the AJS. This was accompanied by a decrease in blurb/factoid items in the Popular Science category (11.6%). Together, these results might reflect the pulling-out of scientific education from the popular press into more specialized journals, professional associations, and university courses. A more extensive survey would of course have to be conducted to confirm these results.

The rhetoric of scientific articles at this time is even more important to the project of updating our Popsci. expectations to account for the thirty-year development in science journalism between 1835 and 1865. While the articles

from the sample were still structured in a problem/solution/benefits format that provided a narrative of control over the awesome or uncontrollable, Tables 17-19 demonstrates among other things that the "mystery" opening is not as sharply in evidence:

Table 17: Opening structure of 1865 popular science articles

Rhetorical Feature/Pattern	Example
Opening: Utility/the facts • Often gives a "who,what,when, where, why" snapshot in the first sentence • Often uses words like "success" "useful" "practical" • "wonder" language absent	"**Clams: How They Are Regarded and what is done with them by the Barn Island Club**. Clams are of various kinds, their usefulness is undoubted, their ameliorating effect upon human nature is undisputed; so say the members of the "Great Barn Island chowder Club," and so say we all. On Friday afternoon, in compliance with an elaborately elegant programme of invitation and arrangements, we went to Barn Island…" NY Times SURGICAL FEAT.—Wednesday last, one of the most successful surgical operations was performed by our townsman, Dr. J. S. Glick, which speaks well for his skill. The particulars, we learn, are as follows…" Virginia City, Montana, Post "PROFESSOR WHITNEY, the State geologist of California, found among the Sierre Nevadas, about 2,000 feet above the level of the ocean, an almost perfect jaw of a rhinoceros." Scientific American "**Spectral Analysis**. A practical application is likely to be made of the beautiful results of spectral analysis in the casting of steel." Scientific American "*Cannonading at Bull Run*.—The cannonading at the battle of Bull Run was heard in Preston county, Virginia, 125 miles distant." American Journal of Science

Table 18: Structure of "problem" phase of 1865 popular science articles

Problem • sometimes still includes the "ignorance" function relating the scientific problem to a social or educational problem	"…Perhaps the readers of the Times, who have enjoyed now and then a humble clam, would like to know how, on such a high and mighty occasion, those delicious bivalves are prepared." NY Times "Mr. Jas. W. Brown, in the summer of 1862, when in the employ of Ben Holladay received a gun shot in the left cheek, in a fight with Indians…. Mr. B's wound being dangerous, Ben Holladay took him to San Francisco to have the ball taken out, but he surgeons could not find it, supposing it to lay close to the occipital bone." Post "It is important to know the exact moment at which to shut down the cover of the furnace during the melting of metal; time must be allowed for the escape of the gaseous products which are injurious to steel, but if that time be prolonged, an injurious effect of another kind is produced." Sci. Am. "The sounds heard were faint, yet distinct, and so obviously due to artillery as to attract the attention of people and produce the conviction that a ballet was going on…at no great distance." AJS

Table 19: Structure of "solution" phase of 1865 popular science article

Solution • sometimes still includes the "wisdom" function by naming cognoscenti • contains great attention to detail (DET) and occasionally still analogy (ANAL)	"First from a blazing fire the blaze was brushed, and the embers left bare. The hard clams by the bushel were put on, then soft clams…after which the entire mass is covered with a profusion of seaweed which keeps the steam in…." NY Times "On Wednesday Dr. Glick casually observed that he thought he could find the ball. Mr. B. was ready immediately for the operation, which was successfully performed in twenty minutes. The Dr. first extracted a piece of the superior maxillary…and then found the ball to have lodged at the extreme lower portion of the ear and removed it by forceps through the cavity of the ear." Post "To meet this contingency, it has been proposed to test the gases as they fly off by means of the spectroscope" Sci. Am. "There was no cannonading that day, that could have caused [the reports] nearer than that at Bull Run….Note.—It is a commonly received opinion that sound travels farther and more loudly on the earth's surface than through the air—thus the cannonading at Jena in 1806 was very feebly heard in the open fields about Dresden—distant 92 miles—but very distinct in the casemates of the fortifications of Dresden." AJS
Benefit/Use • Only practical benefits are enumerated, using language like "successful" "perfect" "infallible"	"…which nicely bakes the soft clams, nicely bakes the hard clams, cruelly stifles and beautifully colors the lobsters, and perfectly fits the potatoes for the dainty palate of the most epicuean Irishman." NY Times "We congratulate Dr. Glick on so well and successfully performed an operation." Post "..and as soon as the particular color is observed, peculiar to the gas which begins to escape at the moment the molten metal is in proper condition, the manufacturer will then have an infallible sign of the proper moment for closing the furnace." Sci. Am.

In short what we are seeing in this small sample is a greater conformation of science news to the rhetoric of regular news, with a structure very similar to

that Van Dijk found in his survey of news articles, discussed above in section 3.13: summary, story (main event, details of main event), then background, consequences, and commentary. The problem/solution schema particular to science news is still in effect, but the object now is not explaining wondrous and inexplicable forces of nature, but solving practical problems in health and industry. A more extensive comparison of news items between 1835 and 1865 might well corroborate this finding and support both the solidification of American journalistic style and the industrialization of American popular science.

Twain's "Petrified Man," as least as it was reprinted in the Evening Bulletin, conforms well to this new template. The petrified man is introduced straightforwardly, with "who, what, when, where" foregrounded in the first sentence. The main event is detailed next, and then the "consequences/commentary" section is entered into with the words "This strange freak of nature has created a profound sensation in our vicinity." "Empire City Massacre" is structured much the same way. The popular science article was undergoing a change in Twain's time to conform to an event-oriented journalistic style.

These changes to the format of the popular science article will enter into the adjustment of the filter of newsreading expectations in the next section. Twain's considerable insight into the psychology of his readers offers us new perspectives on reader expectations in the 1860s. In addition, the reaction to "Petrified Man" offers evidence of a multi-layered news readership made up of groups of readers who each read the story differently to suit their differing

agendas. All of this new historical evidence—including the changes to the popular science genre—can be accommodated by our Optimality-based model of reading expectations.

4. ADJUSTING THE FILTER OF EXPECTATIONS TO ACCOUNT FOR TWAIN'S HOAXING

After analyzing Poe's hoaxing, I developed the following working definition of a hoax—that it was a rhetorical exchange in a news medium between an author and a readership that served to sensitize readers to their collusion in the redefinition of reality according to ethnoscientific values. From the contemporary reaction to Poe's and Locke's hoaxes, I reconstructed the following provisional ranking of reader expectations about science news:

{Medium, Authority}>> {Novelty, Sensation, Plausibility} >>

{Popsci., Foreign, Internal Coh.}

This notation represents three basic levels of ranking. Medium and Authority were the strongest determiners of decisions about truth-value for newsreaders, equally ranked because these expectations did not compete with each other in the reaction data. Novelty, Sensation, and Plausibility represent readers' comparisons of the content of science news with the real world of their desires and experiences (we are dealing with a rough-grained Plausibility here, like reader judgments about alchemy as a plausible field of scientific innovation); these expectations formed a mid-strength filter on truth-value judgments. The weakest constraints on truth-value decisions when reading science news (or science hoaxes) were textual and generic expectations: Popsci., Foreign, and Internal Coherence.

After analyzing the response to "The Petrified Man" and the "Empire City Massacre," both in Twain's commentary and in the reprinting editors' introductions, important modifications need to be made both to the definition of hoaxing and to the ranking of reader expectations to reflect the elapsed thirty years in hoaxing practices. Twain offers us a valuable vantage point into hoaxing via his analysis of why his "satires" failed and turned into media hoaxes. First and foremost, his denial of deliberate intentions to hoax his readers makes us further revise our notions of author intentionality in hoaxing.

After Poe's cagey self-construction as a hoaxer in the case of "M. Valdemar" we recognized that initial authorial intentions interact with reader expectations of medium and reader responses over time in constructing a hoax. An author has many opportunities during a hoaxing exchange to claim responsibility for the hoax. In the case of Twain's denials of having deliberately crafted a hoax, we saw that textual and contextual evidence can argue against an author's claims of innocence. The evidence in his letter to his brother of Twain's gleeful plotting to further the effects of the hoax on Sewall, coupled with his follow-up of the "The Petrified Man" with further hoax material both argue that Twain was engaged in more than merely *post hoc* play with the unexpectedly credulous reaction to his "satire." Further, Twain went on to write the "Empire City Massacre" without correcting any of his rhetorical "failures" in "The Petrified Man." He also wrote, during this time and after, many successful satires that no one took for hoaxes. It seems probable that Twain had intended to catch readers off-guard with "The Petrified Man" all along and humiliate them for their

naïve trust in paleontologists and geologists. A satire, after all, as we saw in the first chapter, pits both author and reader together against a socially superior target that needs a comeuppance. A hoax, on the other hand, is "the sort of scientific humor that aims directly at the audience's ignorance" and reveals it to them (Lee 141). "The Petrified Man" was called a hoax publicly by several of the reprinting editors, and Twain himself revealed it to be such in his letter to Orion and in the "Memoranda" article for the Galaxy in 1870.

However, Twain's claim that he "accidentally" produced a hoax is crucial to our study of author intentionality in hoaxing because it reveals once more that a hoax is not a monologic statement by an author but rather a rhetorical interaction, residing *only* in the coordinated activity among author, medium, and readership. Twain's point is that even if he did not intend a hoax, his audience's belief in his story *created* a hoax anyway. While the author's intention can direct readers' experience to a certain degree, it still does not constitute the hoax.

What Twain has tuned us into is the realization that reader desires and expectations are powerful determiners of hoaxing events. The Enterprise's core readers needed new information more than they needed to save face. This led them to place trust in reports that the paper's reputation clearly did not warrant. This is not merely a repetition of the old saw, "People believe what they want to," but an opportunity to witness how specific readerly expectations, especially Sensation and Novelty and Medium and Authority, can be ranked differently based on different reader desires. We saw, through Twain's perspective and the perspective of rival editors, how different groups of Enterprise readers might be

characterized by their different ranking of these expectations: miners would rank Novelty over Medium; most of the other core readers would simply suspend Medium in their judgments; and "outsider" readers like competing editors and Eastern readers would rank Medium over Novelty. Further, for all readers who ranked Novelty highest, Entertainment (reading hoaxes purely as entertainment) would be deactivated because of their need to decide upon and use the information presented in the newspapers. Editors and Eastern readers were the only ones with the luxury to rank Entertainment highly and suspend truth-judgments about Twain's story.

Twain's final contribution to the redefinition of hoaxing is the awareness his commentary raised about the interaction of psychological constraints with interpretive expectations in the reading process. Constraints like Progression and Comprehension do not directly participate in decisions about truth-value, but they do act as an early filter on the information that gets admitted to the decision process. In addition, a high-ranked desire for Sensation may both interact with attention-allocating expectations while also assisting in *post hoc* judgments about truth-value. After an analysis of "The Petrified Man" and the commentary surrounding it, I propose a new, dual ranking of reader expectations. The second tier represents the interaction of Sensation with the new psychological reading constraints:

Authority >> {Novelty, Sensation} >> {(Medium), Plausibility, Popsci., Internal Coh.}

{Sensation, News, Progression} >> Comprehension

We will analyze the first tier of expectations first, taking them level by level in order to be clear about the changes they register between newsreading in Poe's era in New York City and newsreading in Virginia City in 1865:

1. First level: Authority. The privileging of Authority in this new ranking is not a change from Poe's era; however, it reflects a slightly different dynamic between author and reader. Twain's reputation was an excellent predictor of truth or falsehood for his readers since he was fairly consistent with signing "Sam Clemens" only to his serious political reporting; anything signed "Mark Twain" was obviously of low truth-value. Of course, just because Authority was the highest ranked does not deactivate the rest of the expectations. In the event that Authority did not decide the issue conclusively, readers resorted to the mid-strength expectations to help them decide about truth-value.
2. Second level: {Novelty, Sensation}. This mid-strength level reflects the instincts of both Twain and his competing editors that their readers attached high truth-value to what was new or amazing; it also reflects the needs of miners for a constant stream of "inside" information. The downgrading of Plausibility from this level to the lower level since Poe's time reflects miners' emphasis on novelty as well as their tacit acceptance of a wide range of seemingly bizarre phenomena on the frontier.
3. Third level: {(Medium), Plausibility, Popsci., Internal Coherence}. These expectations reflect internal and external measurements of the story against itself and against "reality," in other words, the elements of

"common sense" readers had to use to make truth-value judgments in spite of conflicting or absent cues from the medium and author—provided they had not already been swept away by the "extraneous interest" of the story, in Twain's words. The biggest change since Poe's era is the downgrading and partial deactivation of Medium. In this ranking, Medium is presented in parenthesis to reflect the Enterprise's habitual mixing of fact and fiction, which rendered its reputation an unreliable barometer of truth for most readers; Medium remains provisionally in the ranking because editors and miners did have to weigh the tempting new information the paper published against its reputation for lying (Medium with a negative valence).

The second tier of rankings expresses the way in which news-reading strategies (News), the excitement of Sensation, and the desire to get to the good stuff (Progression) often defeated Comprehension of textual details, thus actually facilitating the hoax's initial effect of credulity. For this reason, another of the "morals" that Twain embedded in his hoaxes, aside from "don't believe paleontologists" and "don't get swept up in poor investing schemes," could be stated "always read the fine print."

5. APPLYING THE ANALYSIS TO PROBLEMS IN TWAIN SCHOLARSHIP

As with Poe, several Twain scholars have researched Twain's hoaxing and attempted to define it and examine possible influences it may have had on other genres of his work. These analyses generally break down into two categories: some extend an analysis of Twain's media hoaxes, like "The Petrified Man," and

"Empire City Massacre" to find hoaxing behavior in Twain's fiction; others use the trope of illusion and humiliating revelation in the hoaxing activity to psychoanalyze Twain's relationship to science and technology, especially in the final years of his career. My approach—clarifying the relationships with science and readers that Twain constructs in the hoaxes *first*, and then tracking the development of these relationships through his later "scientific" fiction—validates the rhetorical methods of some of my predecessors while revising their tendencies to read Twain's late-life depression back onto his scientific rhetoric.

The scholarly tradition that reads the hoax as an organizing trope of Twain's other fictions can be represented by Joan Belcourt Ross, Lawrence Berkove, and Pascal Covici. Their project, overall, is hampered by a loose definition of hoaxing that fails to distinguish Twain's literary projects from his social projects. The necessity of covering the "several hundred" examples of hoaxes that Joan Ross finds in the Twain oeuvre leads her to create a vague definition of the practice that cannot help but contradict itself when applied to moments as diverse as Huck playing a practical joke on Jim in Huckleberry Finn and the identity switch at the heart of The Prince and the Pauper. For example, Ross initially defines a hoax by saying it provides its writer with human comforts—like security and money (1), but two pages later she claims that hoaxers risk "shame, humiliation, and in extreme cases, death" by perpetrating their hoaxes (3).

Lawrence Berkove attempts to avoid self-contradiction by constraining his definition of hoaxing. He identifies A Connecticut Yankee in King Arthur's

Court as a "tragic hoax" as opposed to a comedic hoax like "Petrified Man." He writes, "Readers expect the target of the hoax to be one or more of the characters in a work of fiction; it always comes as a shock, when they learn that *they* are the author's real target" (Berkove 89). The central problem with this definition is that once readers know they are reading a novel like A Connecticut Yankee and have therefore decoupled their interpretation of it from their construction of the real world they live in, it is impossible for the author to make them the "target"; therefore, it is impossible to hoax them in the same way that Twain hoaxed his farmer-readers or the editors who blithely reprinted "The Petrified Man" as news. Reality as readers know it—i.e., the reality in which they pick up their kids from school, go to church, or buy stock—does not change to match the world of the science fiction novel they have just finished. The realities of those who believe media hoaxes, on the other hand, *change* until the hoax is revealed, and perhaps even after that.

Pascal Covici's conception of hoaxing is, of this school, the most congenial to the aims of this project; he thinks of hoaxes in terms of reader expectations. He was the one who first pointed out that Twain was using hoaxes like "The Petrified Man" and "Empire City Massacre" as weapons against post-bellum readers' tendency toward sensationalism or "collecting thrills." Covici concluded, "The hoax is aimed at the assumptions that make the romantic appreciation of sensationalism possible" (154), because the hoax must match those assumptions, at least initially, in order to achieve its humbling effect. However, Covici's definition of hoaxing is still too broad. He wishes to

recuperate an excised section of Life on the Mississippi concerning a grisly balloon journey as a lost Twain hoax. When he points out that the story is almost certainly a parody of Poe's "M.S. Found in a Bottle" and "Hans Phaall," he is in fact correct. With its exaggerated descriptions, like "dead people in all possible stages of greenness & mildew, & all of them grinning & staring…& a lot of dried animals of one sort & another" (256), and its being marked for inclusion in a hyperbolic memoir, the tale is indeed a parody rather than a hoax; it cannot play with its readers' conceptions of reality. Neither can the other "missing hoax" Covici wishes to include in the Twain hoax canon, the parodic opening of Twain's "Double-Barreled Detective Story" where Twain sets the mood with "a solitary esophagus sle[eping] upon motionless wing" (Clemens "Double-Barreled" 264). In this second case, Covici argues that Twain's "double-speak" with scientific terminology like the word "esophagus" "suggests the formal prerequisites of any hoax" (144), and he is again right. Choosing (or creating) words that are read over and accepted without comprehension or analysis by readers who just assume the concept is over their heads—this is perhaps the most fundamental move toward building a media hoax. But the "esophagus" paragraph and the excised balloon chapter of "Roughing It" are both literary parodies, appearing in literary contexts where they are disabled from altering readers' expectations of reality. So, Covici's criticism of Twain's hoaxing, while the most rhetorical and perceptive of the school we have just reviewed, still conflates playing with literary conventions and playing with epistemology. This mistake

obscures the choice that Twain made to address his readers' construction of reality with his hoaxes and his social criticism, as we will see momentarily.

The second category of Twain hoax scholarship is the psychoanalytic category. The basic critical move made by the foundational scholars in this school is to use Twain's disappointments with scientists and machines to argue that he, though initially gulled by a vision of utopian progress through science, became disillusioned with science in his later years and feared it would be used by people merely to destroy each other. The more rhetorical angle of this view holds that Twain performed hoaxes to dramatize to himself and to his readers his sense of betrayal by promises of technological utopias that delivered only dystopic self-annihilation. This approach to Twain's relationship to science tends to get the cart before the horse, reading Twain's bitter losses and disappointments with science and medicine later in his life back onto his scientific rhetoric.

The psychological school of Twain's scientific philosophy was opened by Hyatt Waggoner, who claimed Twain came to the conclusion that self-determination was an illusion. "Mark Twain lived the last fifteen years of his life a bitter pessimist and a philosophical mechanist...He came to think of man as a machine buffeted by an indifferent, if not hostile, mechanical universe" (357). This essential point has been repeated with small variations in studies of Twain's science by Tom Burnam, James Wilson, and Sherwood Cummings. Shelley Fisher Fishkin instead invokes "ambivalence," the prevailing trope in criticism of the American Romantics' attitudes toward science, to label Twain's own scientific philosophy. She claims that Twain's disappointments with science,

figured by the death of his brother Henry in a steamboat explosion and Twain's failed investment in the Paige typesetter, made him ambivalent toward science's intense promise for improvement of American life on the one hand and its "potential for dehumanization and devastation" on the other (179-180).

Joan Belcourt Ross and Lawrence Berkove extended this mode of criticism in the last phases of their more rhetorical analyses of Twain's hoaxing. Both of them take the hoax as the organizing principle of Twain's scientific philosophy and cosmology. Berkove figures the "Sand Belt" chapter of A Connecticut Yankee, in which Hank Morgan ironically ends up barbequing 11,000 knights on his electric fences after working for years to "rescue" feudal England from its barbaric ignorance, as a dramatization of Twain's own belief that humans are merely the "butt of God's rather grim practical joke or 'hoax'" (90). Ross's arguments about the power of the hoax in Twain's personal philosophy are not centered specifically on his view of science, but on his determinist view of human nature in general, the "propensity of all men, everywhere, consciously or unconsciously, to be implicated in the creation and/or the sustaining of illusion " (5). Ross claims that Twain used laughter to try to shock his readers out of this state into fleeting moments of self-realization, an interesting argument we will turn to in the final section. The consensus of these scholars' readings of the hoax in Twain's scientific and moral philosophy is that the hoax became the organizing trope of his thought—that Twain came to view human beings as gullible victims of a universal hoax and that, except for the brief

respite offered by laughter, there was no way out of this grim cycle of illusion and disillusionment.

These theories tell us less about Twain's views on science than they do about our own desires as scholars to reduce Twain's personality, philosophy, and rhetorical practices to formulae. Unfortunately, this reduction accidentally pares away the social aspects of Twain's hoaxing. The hoax is an essentially *social* transaction, requiring for its dual effect of illusion/revelation all of the disparities in knowledge and imperfect transfers of information that obtain between author, medium, and audience in a newsreading culture. As a social transaction, the hoax was a conscious rhetorical choice of stance for Twain, not an inevitable side-effect of his "mechanistic" world view. Twain chose many other genres of interaction with his readers as well: satire, novels, essays, editorials, travelogues, and lectures. Why not examine Twain's science through these rhetorical lenses instead? Scholars are attracted to the idea of viewing Twain's personal philosophy through the hoax because it presents an appearance/reality dichotomy as well as a rhetorical model for social control, and these issues definitely mirror fears that Twain harbored about the role of science in human society. However, these scholars have not yet succeeded in establishing any kind of necessary connection between Twain's use of the hoax and Twain's moral or scientific philosophy. In fact, the one scientific media hoax Twain actually pulled off, "The Petrified Man," was written when Twain was young and optimistic. It does not discuss machines or the mechanistic world view that these scholars believe was

Twain's last resort in his later years after he rejected the illusion of the scientific salvation of humanity.

The promising aspects of these approaches to Twain's philosophy of science, then, are relatively restricted. In the final phases of Joan Belcourt Ross's argument, she inquires into what sort of relationship Twain was attempting to build with his readership via the rhetoric of the hoax. That question will be the focus of the next and final section of this chapter. In establishing the significance of the hoax in Twain's scientific thought, we must work against the grain of Twain scholarship to this point. Instead of projecting Twain's mechanistic depression backward and reading it onto his scientific hoaxing behavior, we must work from his early hoaxing forward through his thinking, traveling along the threads of arguments introduced by the hoaxes to see how they are developed in Twain's writing about science.

6. Relationship of the Hoax to Twain's Scientific Thinking

We have already discussed Twain's early hoaxes, "The Petrified Man," and "Empire City Massacre," in some detail. Identifying the arguments Twain makes about science here is relatively easy, as Twain's philosophy of science is simple and relatively undeveloped at this stage. "The Petrified Man" argues that both scientists and lay readers jump to conclusions, that the desire to prove a theory (Darwinism) or the desire for titillation makes people overlook facts that would lead them to a different and more sobering conclusion if they took the time to consider them. "The Petrified Man" also performs two additional arguments about science in culture: one, that scientists are competing with journalists for the

authority to create the West for readers; two, that the media both exacerbates this problem by reprinting sensational science news willy-nilly, and provides a potential remedy in the form of gate-keeping editors who exercise their common sense. However, Twain's hoax dramatizes the extreme difficulty of using rhetoric to sensitize readers to their naïve assumptions. Namely, if they will not slow down long enough to read what has been written, the best and most telling argument against their naïveté can turn easily into a confirmation of it. A brief review of three of Twain's important later works concerning science, 3,000 Years Among the Microbes, Connecticut Yankee, and An American Claimant, will reveal to what extent these early fibres of Twain's scientific rhetoric are taken up by an older and wiser Twain.

6.1 3,000 Years Among the Microbes

This unfinished novel promotes a fractal model of human society through the investigation of one of its microcosms: germ society. Twain's basic postulate is that every being is made up of a society of smaller beings who are not aware that the "universe" they inhabit is really just a larger, more complex organism that, in turn, belongs to a society of its own. The narrator is a cholera-germ who calls himself "Huck," among other names, and he alone knows that all of his germ compatriots in all their levels and castes of society are merely cells in the body of a diseased tramp named Blitzkowski; Huck bears this privileged awareness because he was a human, and a scientist, before he was accidentally turned into a germ by an "alchemist." The implication pervading Huck's stories about his life

among the germs is that humans themselves are various types of germs—good and bad—in a greater organism they call the universe.

Twain's research into microbiology, manifest in this book, is impressive for a writer in the early twentieth century. His ecological sensitivity is noteworthy, too, as he considers the ignorance of disease germs as they wreck their "environment." A yellow-fever germ friend of Huck's complains that the tiny microorganisms that infest the germs themselves are not aware of the pain they are causing their hosts; if they knew, they would stop. Huck muses at this, "You notice that? He did not suspect that he, also, was engaged in gnawing, torturing, defiling, rotting, and murdering a fellow-creature—he and all the swarming billions of his race. None of them suspects it" (454). Huck goes on to make it clear that this statement applies to human ecology as well:

> It hints at the possibility that the procession of known and listed devourers and persecutors is not complete. It suggests the possibility, and substantially the certainty, that man is himself a microbe, and his globe a blood-corpuscle drifting with its shining brethren of the Milky Way down a vein of the Master and Maker of all things, Whose body, mayhap,—glimpsed partwise from the earth by night, and receding and lost to view in the measureless remotenesses of Space—is what men name the Universe (454).

Huck persists with his human scientific activities even as a germ. He and some friends put together a scientific society on the basis of having "excavated" a calcified flea imbedded in one of Blitzkowski's arteries. They gather at the

"fossil mine" and pick over the bones as human paleontologists would with a dinosaur. Here, it appears Twain intended a second satire of paleontologists who build monsters out of a single bone chip, similar to the mocking portrait he crafted in "How the Animals of the Woods Sent Out a Scientific Expedition"—but he cut all 18 pages of it from the manuscript. He does not excise, however, a stinging satire of scientists for being so absorbed in their methods that they miss the truth. Huck explains to his scientist germ friends that he was once a human and that the organism they inhabit is part of a whole other and bigger universe. He is either scoffed at for a liar or lauded for his beautiful "poetry" (487). Twain also satirizes the mercenary turn of science as its shoulder inevitably bends to the wheel of capitalism in America. Huck discovers a gold mine in one of Blitzkowski's molars—actually, he *imagines* it is there and convinces all the other scientists that it is, too. But the more he considers working the mine with them, the smaller and smaller a share of the profits he is willing to give his friends (551-553). The manuscript ends there, leaving a perhaps unfair but powerful impression that Twain believes the ultimate goal of American science is not finding the truth but making a buck. This rather cynical ending leads Beverly Hume to speculate that 3,000 Years Among the Microbes is an exercise for Twain in exorcising his own get-rich-quick demons in the wake of the Paige typesetter disaster (80).

6.2 A Connecticut Yankee in King Arthur's Court

This novel is probably the most discussed in the reconstruction of Twain's views of the role of science and technology in human society. It is the

cornerstone of psychoanalytic arguments that Twain felt hoaxed by technology and by the universe—particularly the final chapter, "The Sand Belt." For a book that is in general a humorous satire on systems of primogeniture and aristocracy, which Twain found residually operative in Southern plantation culture, the straight-faced brutality of the final chapter is a shock. But it is also an indication that the "improvements" that have come before—Morgan's caste-leveling schools and factories, his capitalism, his introduction of Victorian hygiene and work ethic—are in the end deadly improvements, or at the least, null improvements, as Morgan destroys any trace of them that history might have hoped to find.

H. Bruce Franklin points out that this sharp denunciation of the dystopic future offered by science is not the only social criticism of science Twain worked into the "Sand Belt" chapter of Connecticut Yankee. Franklin argues that Twain, innovating the genre of time-travel fiction with Morgan's trip back to feudal England, institutes a new social time-scale, one based on technological advancement rather than chronology. It is a time-scale Twain senses underlying the myth of progress in his own culture, and in Connecticut Yankee he rejects its utopic teleology:

> Hank's apocalyptic weapons resolve the paradoxes of time travel by destroying everything that the nineteenth century has anachronistically introduced into the dark ages. But this resolution itself is paradoxical. The science and technology that mark progress, that distinguish forward from backward in time, become the means to annihilate all that humanity has created. Thus they display their potential to transform the future into

> the prehuman primeval past, that is, mindless oblivion. (Franklin Traveling 170)

From this viewpoint Connecticut Yankee is not just a criticism of the damaging power of technology bent to the human desire to dominate others. It is also a refutation of the entire social epistemology resulting from equating scientific advancement with human development.

6.3 The American Claimant

This novel is another round-about attack on aristocratic systems—this time in the guise of a young earl's son who, to resolve a century-long dispute between the currently recognized Earl of Ross and an American "claimant" to that title, gives up his inheritance to come to America and live as a common American. Technology figures in this book in a positive and humorous light in comparison to most of Twain's later works. Colonel Sellers, the American claimant, spends half his time writing letters to the Earl of Ross in England pleading his claim to the title; the other half of his time, he spends inventing. Both activities are pure comic relief in Twain's novel. The invention that Sellers is dead serious about—a system for reanimating the dead for the purposes of soldiery and slave labor—amounts only to black comedy. However, the items he tosses off in his spare time—like a little tangle puzzle called "Pigs in Clover"—ironically make him loads of money, which he merely squanders in the pursuit of his re-animation system.

In addition to comedy, invention serves as a serious symbol of the positive face of American democracy in the novel. The young Tracy (the American name

the young British Ross adopts after all evidence of his true identity is destroyed in a hotel fire) visits a Mechanics Club debate in Virginia and is awed and pleased at the democratic construction of knowledge he finds underway there. In his journal Tracy reproduces the speech given by a Club member on the value of mechanics as citizens, over and against college-educated scientists:

> It can no doubt be easily shown that the colleges have contributed the intellectual part of this progress, and that that part is vast; but that the material progress has been immeasurably vaster I think you will concede. Now I have been looking over a list of inventors—the creators of this amazing material development—and I find that they were not college-bred men...It is not overstatement to say that the imagination-stunning material development of this century, the only century worth living in since time itself was invented, is the creation of men not college-bred. We think we see what these inventors have done; no, we see only the visible vast frontage of their work; behind it is their far vaster work, and it is invisible to the careless glance. They have reconstructed this nation--made it over, that is--and, metaphorically speaking, have multiplied its numbers almost beyond the power of figures to express. (83)

The speaker proceeds to a calculation of how the machines that inventors have created have multiplied man-power. "You look around you and you see a nation of sixty millions—apparently; but secreted in their hands and brains, and invisible to your eyes, is the true population of this Republic, and it numbers forty

billions! It is the stupendous creation of those humble, unlettered, un-college-bred inventors—all honor to their name" (83).

In light of Twain's background as a journeyman printer, riverboat pilot, and novice miner, it is not surprising to find his young British protagonist celebrating the advantage of tradesman over the college-educated. However, interestingly, Tracy also enthusiastically records the speaker's praise of the American media for its work exposing the schemes and illusions of the elite classes in America: "For its mission…is to stand guard over a nation's liberties, not its humbugs and shams" (80). This equation of the press with the revelation of "shams" perpetrated by powerful classes in America is crucial for our discussion of Twain's social project of hoaxing.

6.4 Analysis

In Twain's later works we find confirmation and development of nearly every strand of argument about science present in "The Petrified Man" with some additional lines of argument added. Twain still believes scientists are hurting themselves as much as the public when they make simple judgments about complicated systems motivated more by their commercial and political agendas then by an authentic hunger for truth. He still believes the media can help expose scientific and other social humbugs; however, he still respects and fears the power of readers/hearers to extract uncontrollably many interpretations from the same discourse, as illustrated by the "beautiful palace/beautiful lie" conundrum of Huck's exposition of the "real" human universe in 3,000 Years Among the Microbes.

To these lines of argument Twain has added others based on his life experience. They include an enthusiasm for invention in the spirit of the self-made Jacksonian tradesman—evident both in American Claimant and Connecticut Yankee—counterbalanced by a very real horror of what American inventions can do when put to the task of "correcting" the backward ways of less technologically developed countries. This "ambivalence" is what has led psychoanalytic scholars to identify Twain's experience with science and technology as the last straw in confirming his late-life depression. However, there is another, more rhetorical way to construct Twain's relationship to science suggested by his own works.

Twain's treatment of science in "The Mysterious Stranger" manuscripts, written in his dark later years, tells a slightly different story about Twain's beliefs about the relationship between science and human society than has regularly been assumed by scholars. In this work Little Satan argues that humanity damns itself with its "moral sense" and simply uses the products of science to help (Wilson 81). It is human nature that is to blame for the inability of the human race to progress past the brutal dominance of those who think and live differently. Science and technology simply aid that project both philosophically (i.e. with Morton's craniological theories of the inferiority of non-White races as discussed in Chapter 2) and physically (with the Gatling gun and other war machines). Some of the same scholars who see Twain as a bitter mechanist do acknowledge this turn in Twain's thinking. Waggoner writes that Twain "*used* science to reinforce his thinking" (367). And James Wilson concludes after reading the

“Mysterious Stranger” that Twain believes the worst of “man”: “Science here is…merely a handmaiden to his depraved nature, creating a world even worse than the one preceding it" (81).

But at this point, this line of argument reaches a disconnect for most Twain scholars, for they generally evince a belief that Twain was not a social activist—a social satirist, certainly, but not someone who dealt seriously with contemporary social issues and tried to persuade Americans to adopt certain solutions. According to this view, when Twain said that science would not destroy human society but that human nature would, he was certainly criticizing, but not constructively. Indeed, Twain’s pessimistic view of human nature, his determinism and mechanism, would not seem to foster any kind of ideal of progress or improvement for the human lot. But reexamining the question of what kind of relationship Twain was building with his readers through his hoaxes, coupled with a more careful analysis of Twain’s social activism, leaves a very different impression. Twain did indeed have a social agenda, “to help a man to see himself true”(Ross 189). This turns out to be not merely a static goal, but a constructive one, accomplished through the social mechanics of laughter. To arrive at this conclusion, we will return to Twain’s early roots in frontier humor and its social function, review the modifications he made to that mode with his media hoaxes, and consider how this activity meshed with his social criticism in his later years.

7. THE SOCIAL MECHANICS OF LAUGHTER

Laughter is an extremely specialized reaction to an argument of difference, specifically, a difference between our assumptions and a revelation of how things "really" are or how they are "really" being constructed for us by others. Laughter, especially in America, is a response to juxtaposition of the reader/viewer's assumptions with a very different presentation of reality—a big man riding a bike that is much too small for him, a man wearing women's clothes, a baby talking with an adult's voice, a pack of wolves chasing a marching band instead of a herd of reindeer. In all of these cases, we perceive a gap between our *a priori* assumptions about the world and a surprise revelation of how it is really working at this moment (in irony, we find it works exactly counter to our assumptions). The perception of this gap triggers laughter as a response. For some of us, the laughter also expresses a desire to close the gap, to adjust our assumptions so as not to be caught off guard again. For others of us, the laughter is pure play, an appreciation of the imperfections and incompleteness of our understanding, a good-natured sympathy with the "joke being on us."

James Cox argues that, for Twain, laughter is the conversion of pain into pleasure, and Twain's own writings seem to support this hypothesis (Cox 146). Twain argues in "Down the Rhone" that, just as an ice-cube on your bare back cannot be told from a hot brand for a second or so, so can the shock or recognition that you have misperceived reality as a result of someone's performance of it feel like both pain and pleasure (Ross 9). At first there is just the shock, and the question of how you respond to it is a question of social control. If you feel you

were made, against your will, to misperceive reality by those who played on your assumptions to perpetrate an illusion on you, then anger and fear may result. However, your laughter can convert the shock of the experience to a reassertion of self-determination. It demonstrates a gap now between your self that was duped and your *real*, wiser self that can appreciate a good joke and will be harder to dupe the next time. Laughter creates distance between your old mode of perception and your new, enlightened self; anger and fear do not. That is what we mean when we say that people took something "personally." They were unable to create a distance between their negative face (how they see themselves) and their positive face (how they think others see them) through laughter.[20]

Twain knew all about this dynamic from his experience with frontier humor. Briefly, let us recap the social functions of the tall tale that bear on our discussion of Twain's social mechanics of laughter:

- The tall tale demonstrates control of unknown/frightening social and natural environment
- The tall tale constructs a group of "outsiders" who fall for the tale, and sets them apart from the "insider" or "insiders" who tell the tale.
- The tall tale criticizes the unwarranted (in the opinion of the insiders) elite status the outsiders enjoy and argues that their established traditions are useless on the frontier (cowboys vs. "city slickers")

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[20] For a discussion of negative and positive face as they bear on politeness and other pragmatic aspects of human communication, see Brown, P. and Levinson, S.C. Politeness: some universals in language usage. Studies in Interactional Sociolinguistics 4. Cambridge: Cambridge University Press, 1987.

Telling a tall tale was a powerful way to rebuild confidence, solidify insider status, and criticize outsiders. Being a victim of a tall tale left you with several options, the two primary ones being anger and laughter. Anger cemented your outsider status, and then you were left to other means—violence or the law—to challenge the insiders and re-take control. Laughter, on the other hand, did not necessarily make you an insider, but it distanced you from the "outsider" values that the tall tale criticized. This laughter may not have felt at all pleasurable, despite Cox's argument, but it was a counter-move to regain self-control against the social control exerted by the teller of the tall tale. That social control consisted of an awe-inspiring power to set community values and allocate community resources on the frontier. Insiders "got it," in more ways that one. Outsiders did not.

Twain made several important changes to this basic social machinery when he engineered his "Petrified Man" and "Empire City Massacre" hoaxes for the Enterprise. He was clearly familiar with Poe's hoaxes, as we saw above in the excised balloon chapter from Life on the Mississippi, and though he was born just a few months after the publication of Locke's "Moon Hoax," he had undoubtedly heard of it by the time he worked on the Enterprise. Perhaps he even read it; the first re-issue of the hoax, in an edition by William Griggs, was published in New York in 1852 just a few months before Twain moved to New York City. Twain knew that, in order to fly, hoaxes needed an "unfair pretense at truth" that the ephemeral orality of the tall tale could not quite produce. This "pretense" entailed appearing in print, in a news medium that people relied on exclusively for

knowledge of what was going on outside their small Western town. It also entailed the adoption of standard dialect and all the formal features encapsulated in readers' Popsci. expectations (Rourke 2:6), as opposed to the vernacular dialect and narrative form of the tall tale. The print media offered both anonymity and distance that the telling of a tall tale could not; these mechanisms were crucial for slowing down any "facts" that might filter, through conversation between readers, into the workings of the hoax and grind its gears to a halt. A hoax also presupposed a level of publicity that the oral modality of the tall tale could not possibly achieve, thus increasing and speeding the diffusion of the hoax through multiple readerships and aggrandizing the reputation of its author (Kaufer 411, 416). In short, Twain knew a hoax worked its effect by pretending two things in one—pretending to be a "real" news story, thereby pretending that the events it reported had really happened. A tall tale simply pretended that the events it related were real—and sometimes it lost even that pretense with all its exaggerations for humorous effect.

A good tinkerer, Twain adapted the mechanics of the tall tale to suit his purposes. A tall tale produced an awareness of outsider status and perhaps a chance to reassert self-determination through the distancing function of laughter. A hoax, on the other hand, could create something more. While the victim of a tall tale could learn little other than that s/he did not fit in on the frontier, the victim of a hoax could learn a lot more because his/her assumptions about science and the real world were the real target. This was Twain's design when he set out to "kill the petrifaction mania with a delicate, a very delicate satire" in the

"Petrified Man," and when he set out to expose the dividend-cooking mining companies in the "Empire City Massacre." The hoax offers an opportunity to open readers' eyes to potentially dangerous assumptions they make about a particular social institution.

The hoax accomplishes this in the moment the reader perceives the gap, the lack, between what s/he has assumed and what the state of the art really is. It is a moment of embarrassment, in the "pregnant" root sense of the word—the moment when everyone else can see publicly what you know privately about yourself. If this moment of embarrassment is produced by an awareness of ignorance about a subject—science or economics, for instance, an educative potential to the hoax experience emerges. The distancing effect of laughter, in addition to reasserting self-control, can also express a desire for self-education as insulation against further attempts by others to control you through illusions. This instructive moment of embarrassment is very similar to the moment that Socrates's dialectic partners came to realize the gap of inconsistency between beliefs they entertained simultaneously—the *elenchus*.

What is particularly interesting is that there is some evidence that Twain was familiar with the *elenchus* as a dialectic method. While there is no direct evidence that he read Plato, he avidly enjoyed Voltaire, who channeled a great deal of Platonic dialectic into French common-sense criticism. Voltaire and Twain, in fact, are considered together as founders of the Freethinkers movement, an atheist movement beginning in the 18th century that now is usually labeled secular humanism. Voltaire's works contain dialectic passages similar to Socratic

dialogues, where a naïve questioner is made by a master dialectician to admit the inconsistency of his/her assumptions. One of these passages can be found in Candide where Martin and Candide debate the jaded critical attitude of Pococurante, and Martin brings Candide to *elenchus* by pointing out an inconsistent belief he entertains—that Pococurante experiences pleasure by never having pleasure (Voltaire 139). In 3,000 Years Among the Microbes, Twain constructs a very similar dialectic between Huck and a clergyman over the issue of animals having souls. The clergyman begins:

> "What is a creature?"
>
> "That which has been created."
>
> "That is broad; has it a restricted sense?"
>
> "Yes. The dictionary adds, '*especially* a living being.'"
>
> "Is that what we commonly mean when we use the word?"
>
> "Yes."
>
> "Is it also what we always mean when we use it without a qualifying adjective?"
>
> "Yes." (496)

And the dialectic continues until the clergyman forces Huck to see that he already believes all living beings, germs included, have souls because Huck does not distinguish "life" from "animation," or soul-possession.

The question arises, then, if Twain was bringing his readers' understanding of the world to an *elenchus*, a null state of internal contradiction, why was he doing it? What did he hope to accomplish with his readers by

entering into this dialectic with them in “The Petrified Man”? Joan Belcourt Ross argues that Twain wanted his readers to “see themselves true,” to realize they were all the victims of hoaxes perpetrated not only by scientists, but by the church, by politicians, by Twain’s favorite flogging-horse, Christian Science, etc. (Ross 189). Pascal Covici makes the same point slightly differently: "The hoax-as-satire becomes especially important in Twain's works when it serves to reveal the hidden truth about the reader himself. Ourselves in particular, not people in general, are stripped of pretensions and made to stand self-revealed by Twain's most effective hoaxes" (159).

This goal as expressed by Ross and Covici is essentially a negative one. It argues for a *deconstructive* laughter that tears down the “wonder-business” of popular science but builds no belief structure in its place. This is the sort of laughter that follows a Poe hoax, as Poe had no vested interest in improving the lives of the people he fooled with his hoaxes (Rourke 6:3).

But Twain’s hoaxes are not like Poe’s. Twain states a social goal from the beginning of “The Petrified Man,” and that is to snap his readers’ out of their googly-eyed fascination with paleontology while “touching up” the local coroner, to boot. If Twain was shaking up his readers’ perceptions of reality, what did he want to put in place of their illusions, if anything?

Constance Rourke in her study of Twain’s humor writes, “It is a mistake to look for the social critic—even manqué—in Mark Twain. In a sense the whole American comic tradition had been that of social criticism: but this had been instinctive and incomplete, and so it proved to be in Mark Twain” (7:2). Rourke,

like Ross, sees Twain deconstructing the edifices in which his readers put their trust but refusing to inculcate them with his own values, tell them what to believe now. In fact, however, Twain was very vocal about what he thought Americans should believe. We have already seen his praise of working men over college boys in An American Claimant. He dedicated a book to exposing what he felt to be the fraudulent claims of Mary Baker Eddy in Christian Science. And, he championed democracy against hereditary systems of power in Huckleberry Finn, An American Claimant, and Connecticut Yankee. In Following the Equator, he decried both missionaries and American Imperialism, arguing for the fundamental right to self-determination of all nations on earth.

This last was the social arena in which Twain was most active. He was Vice President of the Anti-Imperialist league from 1901 until his death in 1910 and a vocal opponent of both the Spanish-American and the Philippine-American wars, especially the brutal use to which technology was put in them. His essay for the North American Review in 1901, "To the Person Sitting in Darkness," was a scathing review of "the missionary question" in the wake of the Boxer Rebellion in China. In it Twain denounces the use of American technology to extend American dominance over less industrialized nations under the guise of missionary activity:

> *Shall we?* That is, shall we go on conferring our Civilization upon the peoples that sit in darkness, or shall we give those poor things a rest? Shall we bang right ahead in our old-time, loud, pious way, and commit the new century to the game; or shall we sober up and sit down and think

> it over first? Would it not be prudent to get our Civilization-tools together, and see how much stock is left on hand in the way of Glass Beads and Theology, and Maxim Guns and Hymn Books, and Trade-Gin and Torches of Progress and Enlightenment (patent adjustable ones, good to fire villages with, upon occasion), and balance the books, and arrive at the profit and loss, so that we may intelligently decide whether to continue the business or sell out the property and start a new Civilization Scheme on the proceeds? (2)

The essay created such a media firestorm, according to Jim Zwick, that one prominent Massachusetts editor claimed, "Mark Twain has suddenly become the most influential anti-imperialist and the most dreaded critic of the sacrosanct person in the White House that the country contains." The backlash affected Twain significantly. What is today considered Twain's most powerful piece of anti-war literature, the "War Prayer," a black satire of the glories of war reminiscent of Stephen Crane's "War is Kind," was considered so incendiary by Twain's biographer, Albert Bigelow Paine, that he urged Twain to suppress it; it was only published posthumously, during World War I.

Certainly, this late-life political cause against the connection between American technology and American imperialism cannot be read back onto Twain's early hoaxing, like "The Petrified Man," but it reflects the reaching of a state of critical mass of a concern that is present in that seminal hoax, present throughout all of Twain's writings—self-determination. If Twain had one absolute belief, consistently evident in his thinking, it was in the right of a human

being to decide his/her own destiny. Twain's hoaxes gave readers a chance, through the social mechanics of laughter, to stand apart from their old preconceptions and choose a new path.

Lest we think of Twain as the champion of free-thinking, however, it is important to point out that Twain also recognized the powerful mechanics of control inherent in the hoax. If the reader wished to be an "insider" like the author, then the hoax could instigate the kind of laughter that desired identification, an education in insider-hood, a distancing of the self from the old self-image, and a realignment with the values of the author and his insider group. Warwick Wadlington finds exactly this dynamic active in Twain's satiric travel narrative Innocents Abroad. In The Confidence Game in American Literature, Wadlington takes issue with James Cox, who says that Twain hoped to use his readers' laughter to "set the reader free" from her misconceptions. Wadlington finds instead that Twain wished to shatter his readers' habitual epistemologies and then reshape their worlds as Twain saw them. "The really pertinent test of sincerity in the book's rhetorical system is whether or not a given Twain performance accomplishes the twofold end of relieving excitable feelings and achieving authority over the reader" (195). Twain's hoaxes can be viewed as another rhetorical means to this end.

Twain in his last years had a clear view of the social mechanics of laughter. In "The Mysterious Stranger," he has Little Satan describe laughter as a technology—a powerful social weapon:

> …for your race in its poverty, has unquestionably one really effective weapon—laughter. Power, money, persuasion, supplication, persecution—these can lift at a colossal humbug—push it a little—weaken it a little, century by century; but only laughter can blow it to rags and atoms at a blast. Against the assault of laughter nothing can stand. You are always fussing and fighting with your other weapons. Do you ever use that one? No; you leave it lying rusting. As a race, do you ever use it at all? No, you lack sense and the courage (88).

Twain may truly have wished for his readers to use this weapon to blast away the hoaxes being foisted on them by the American technological and imperial industries and "see themselves true," reassert control over their own lives. Or, he may have wished to use this laughter to break down his readers' value systems and replace them with his own—with the value of self-determination paramount over all. By times, maybe he used laughter toward both of those ends. But what is clear is that the social mechanics of the rhetoric he chose when he faced his readers in "The Petrified Man" were more than powerful enough to hit both of those targets.

Chapter Four: The Hoaxes of Dan De Quille—Building and Defending the West

Dan De Quille's scientific media hoaxing was deeply conditioned by both Poe's and Twain's hoaxes but was ultimately a different project from theirs. Poe did not have Western pioneer readers—fiercely independent men and women who prided themselves on making up their own minds (sometimes independently of the facts), who were suspicious of outsider commercial interests, and who were in general ignorant of science but intimately familiar with mining technologies. And even though Twain and De Quille shared these readers, Twain could not relate to them at the level that De Quille did. De Quille admired his "stubborn old comstockers" ("Quille Drops"). After all, he had been a miner himself for several years before turning to journalism, and he stayed in Nevada for almost 30 years after Twain went back East. His empathy with his readers permitted De Quille to simultaneously gull them and immortalize them as America's new folk heroes through his hoaxes. His pride in the character of the American prospector coupled with his love of science and technology made De Quille's hoaxing historically unique. Enamored by the tremendous potential of the hoax to construct realities, Dan De Quille used the four major and several minor scientific

media hoaxes he wrote from 1865 to 1880 to create and defend his ideal West and Westerners from Eastern commercial appropriation.

1. RHETORICAL EDUCATION

Dan De Quille is somewhat of a mysterious character, only a fraction having been written about his life compared with the volumes penned on his famous colleague on the Territorial Enterprise, Mark Twain. Richard Dwyer and Richard Lingenfelter have produced the most recent and extensive biography of De Quille (1990), amplifying Lawrence Berkove's excellent biography in his 1988 edition of De Quille's novella Dives and Lazarus. In both of these portraits, De Quille appears as a cluster of contradictions: a devoted and supportive father and husband, who nonetheless left his family for nearly forty years to prospect and write in the West; a reputedly genial and non-confrontational friend, who was also known to pick fights in bars for practically no reason; a dedicated journalist, by all contemporary reports the workhorse of the Territorial Enterprise, who was fired at least twice from that paper for being too drunk to work for weeks at a stretch; and, a tolerant and well-read socio-political theorist, who turned out shockingly virile anti-Semitic and anti-Chinese statements in his later life.

Dan De Quille was born William Wright on May 19, 1829, to a farming family in Knox County, Ohio. When he was 18, the family relocated to West Liberty, Iowa, and shortly thereafter, William's father died and left him largely responsible for his mother and eight younger siblings. At the age of 24, he married Carolyn Coleman and had five children with her in four years, two of whom did not make it past infancy.

Little is known about Wright's early education other than evidence from his early letters that he was well-lettered. He supposedly submitted stories to Eastern magazines, though there is no evidence that these were published (Wright The Big Bonanza viii). From his letters we know that he read widely in world literature; some of his favorites included Don Quixote, many of Dickens's novels, the Arabian Nights, Ben Jonson, Jonathan Swift, James Fenimore Cooper, and Thomas Carlyle. He quoted frequently from Shakespeare and the Bible (Wright Dives and Lazarus 30).

In 1857 Wright left his family for the California/Nevada territories and gradually migrated to Virginia City in 1860, following rumors of new gold and silver claims. He would not return to Iowa, except for a few brief visits, for 36 years. He wrote his sister Lou religiously; if he wrote his wife and young children, those letters are no longer extant. Finally, his health broken, he returned to Iowa to live with his daughter in West Liberty for the last few years of his life.

De Quille never managed to strike it rich as a placer miner and supplemented his income writing for several territorial newspapers of the "Sagebrush School," including the Golden Era in San Francisco, the Engineering and Mining Journal, and, starting full-time in 1861, the Territorial Enterprise. It was about this time that he began to sign his articles "Dan De Quille." Unlike Twain he used his *nom de plume* (pun intended by De Quille) exclusively until his death; most of his friends in the West knew him only by this name. His colleague C. C. Goodwin punned on De Quille's pseudonym in a sketch called "Dan and

His Quills" that also provides us with a sampling of De Quille's journalistic repertoire:

> Across the table from us Dan De Quille is writing some of his abominable locals, and we have been studying his face. Of late he has thrown away his pencils and procured old-fashioned quill pens….He writes ordinary locals with a turkey quill; for important affairs, like runaways and dog fights, he takes a goose quill; for obituary notices he keeps the plume of a raven; for mining reviews nothing will do but a swan's quill; his scientific articles are fashioned by the quill of an owl; while for the dreadful legends which he strings together for Sunday's *Enterprise* nothing will answer but a feather from the pinion of an eagle or an albatross (2).

The Comstock, the region around Virginia City comprising the Comstock Lode and the towns that sprang up on it, provided a wealth of rhetorical opportunities for Dan De Quille. Contrary to many assumptions, Virginia City was not just a shantytown. Thanks to the largesse of citizens who had "struck it rich," the boomtown of nearly 30,000 citizens possessed a full-fledged theater that put on Shakespeare plays, several musical venues, a newspaper vaunted as the best in the territory, a hotel that boasted the first elevator in the West, and social societies who put on lectures and balls. Culturally and religiously, the Comstock was extremely diverse with Mormon, Catholic, and protestant Christian practices mixing and matching with the traditions of Jews, the Washoe and Piute Indians,

and the large Chinese population who immigrated to the area to work on the railroads and in the mines (Wright Dives and Lazarus 31).

Newspaper clippings preserved in the Dan De Quille Papers at the Bancroft Library [BANC P-G 246], reveal that De Quille was curious about all of these different rhetorics and histories.[21] He clipped extensively on Asian culture, tucking into his scrapbooks a few postcards with pictures from Indonesia; he also collected articles on mythologies of several cultures, especially Native American cultures, and various religious and supernatural items. He also saved clippings on famous American authors, their personality traits, handwriting, and personal histories. A particularly telling clipping for our purposes is a memoir of Poe clipped from the New York Times with mention of both "Hans Phaal" and the "Balloon-Hoax" (fldr. 42).

These influences show up in both the topic and style of pieces De Quille wrote for the Enterprise and the Golden Era. In his regular "Quille Drops" column he offered snapshots of the lifestyles of the many cultures living on the Comstock; occasionally, he even attempted to portray the dialects of the local prospectors, both White and Black, and those of the Washoe Indians and Chinese immigrants. Since these dialect experiments were conducted both before and after his working acquaintance with Twain, it is hard to argue a cause-and-effect relationship between his dialect practices and Twain's in Huckleberry Finn, etc.

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[21] All references to the De Quille papers in the body of the text are given parenthetically with the appropriate container numbers. The full citation of the papers is found in the Bibliography.

Certainly, Twain's transcriptions are more regular and phonetically realistic. Working with Twain, however, affected De Quille's rhetoric in other ways.

Twain and De Quille shared a room and a desk while working on the Enterprise, and they often helped each other out with stories—not just with topics, but also with argument structure and language. In general the object was humor and sensation, as the local columns were either filled with gunfights or the detailed history of a passing haywagon, and either extreme of interest had to be accommodated by an attention-arresting style in order to keep the subscription of the paper up. De Quille reminisced about trying to get Twain to multiply his textual hints for readers that the "Empire City Massacre" was a sham, and Twain waving him off with an, "It is all plain enough" (Wright Reporting 171). It seems significant that De Quille, while he wrote many humorous articles, did not attempt a hoax until after Twain wrote the "Petrified Man" in 1862. And when he did, with the "Silver Man" for the Golden Era in 1865, it was on a very similar topic—a man found turned entirely to silver instead of stone. But where Twain left off scientific hoaxing after his one experiment, De Quille went on to produce four major hoaxes and at least 12 other short, humorous squibs, all concerned completely with science and technology. This predilection was in part due to De Quille's well-deserved reputation as a serious, self-educated mining writer.

2. SCIENTIFIC EDUCATION

De Quille claimed that Twain would have nothing to do with reporting science or geology at the Enterprise because he "hated to have to do with figures, measurements, and solid facts, such as were called for in matters pertaining to

mines and machinery" (Wright Reporting 171). De Quille, on the other hand, could not get enough of them. His papers are interspersed with back-of-the-envelope calculations of shaft depths and mine production rates, and with sketched maps of the shafts of the Savage Mine and other big mines in the area.

Twain and De Quille did about equal time as placer miners. De Quille had no further formal scientific or technical education than did Twain. However, the difference between the writers that Judith Yaross Lee notes in her article "(Pseudo-) Scientific Humor"—namely that Twain makes fun of science like an amateur and De Quille, like an expert—may have come down simply to a matter of interest.

De Quille was fascinated by all things scientific, and especially by mining. Most of his clippings are on geologic, metallurgic, and mining matters. He also kept up with news about climate and weather, chemistry, physics, astronomy, and "pseudoscientific" news about ESP and other psychic phenomena. His papers contain a bulletin from the Society for Psychical Research calling for news about hallucinations, thought-transference, crystal vision, and automatic writing (ctn. 2).

In addition to keeping up with general scientific news, De Quille also wrote extensively and seriously on mining. Lawrence Berkove assesses De Quille's career as a technical writer as follows: "His reputation undoubtedly played an important part in establishing and maintaining the Enterprise as the dominant newspaper in mining circles. Even much later in his life, his articles on mining were solicited and published by a variety of periodicals, including specialized mining journals" (16). These journals included the Mining Industry

and Tradesman and the Engineering and Mining Journal, for whom De Quille wrote not only histories and reports of the mines in the Comstock Lode, but also mining culture articles about "dowsing," or mineral-divining, and the "Tricks of Miners" ("Divining" 171; "Tricks" 618). He was taken seriously by mining engineers at all levels. His clippings contain several favorable reviews of a proposal he apparently drafted for an improved method of constructing canals. His *magnum opus*, The Big Bonanza: An Authentic Account of the Discovery, History, and Working of the World-Renowned Comstock Lode of Nevada, was published in 1876 to universal accolades not only in the territories but also on the East Coast, and it is still considered the "bible" of Comstock mining history. De Quille's friend and colleague, editor Wells Drury, attested to De Quille's preoccupation with mining journalism:

> …his conscience never swerved from the firm conviction that the true calling of a first-class newspaper is to publish items concerning prospects, locations, mines and mills, shafts, tunnels, drifts, ore developments, stopes, assays and bullion outputs. All other matters to him appeared inconsequential and of no material interest. If there was a murder, a sensational society episode or a political contest, any of them were welcome to space after his mining notes were provided for. (211)

Aside from his technical mining reports, De Quille also wrote popular science news in at least three distinct registers: a "high style" formal technical manner, a "wonders of the world" style, and a humorous style. His high register

can be typified by the following excerpt on assaying procedures from The Big Bonanza:

> In testing ores for silver, the miners in the early days used acids….The heavy residuum was then washed from the horn into a matrass (a flask of annealed glass, with a narrow neck and a broad bottom). Nitric acid was then poured into the matrass until the matter to be tested was covered, when the flask was suspended over the flame of the candle or lamp and boiled until the fumes escaping (which are for a time red) came off white. (71)

While the language is as simple as possible aside from the mining jargon, and the argumentation is linear and logical, the lack of clever commentary or word play is notable. It is this authoritative style that cemented De Quille's reputation as a trustworthy science writer, a reputation that became crucial to the reception of his hoaxes. De Quille's middle register adopts a bit of "mystery" or "wonders of the world" rhetoric, as in this clipping from an article written for the San Francisco Chronicle on animal magnetism:

> Some remarkable discoveries have been recently made by French physicians in regard to what they call the action of medicines at a distance….
>
> How were all these mysterious effects produced, often without even external contact? How could mercury blister the flesh through its tubes of glass and cloth envelopes? How could a medicine, placed unknown under a person's pillow, cause salivation, with the accompany

symptoms? The substances were usually inclosed in paper, or in bottles, and many of them are odorless and cold send forth no effluvium to affect the patient's nerves. The whole matter is profoundly mysterious. (ctn. 1, fldr. 50)

De Quille's humorous register was easily identifiable, as in this job description for the state mineralogist of Nevada, published in the Enterprise: "He is to discover earthquakes and provide suitable means for the extermination of the same; also, for book agents, erysipelas, corn doctors, cerebro-spinal meningitis, and the Grecian bend" (ctn. 1, fldr. 8).

The impact of De Quille's many-layered scientific writing on his hoaxing is complex. Clearly, if he often wrote humorous pieces, his readers knew him to be just as capable of spinning a yarn as giving them a "true" report of what was going on in the mines or what new natural marvel had been discovered in the Nevada territory. To make matters worse, it appears De Quille regularly mixed modes in the same article. C. Grant Loomis writes in his extensive survey of De Quille's modes of journalism, "With no distinction between a true story or a fanciful one, he inserted the real and the false item into his daily public offering" (30). Twain and De Quille both practiced this "padding" in their frantic attempts to fill their local columns by press time. However, according to contemporary reports, this intermittent reinforcement only served to cement De Quille's reputation as a scientific "savant" with his readership. Attested De Quille's friend C.C. Goodwin, "…what he wrote, everybody believed implicitly. This or that expert might make a report, and men would say, 'He may have been mistaken.'

This or that owner of heavy shares might express his opinion, and men would say: 'Maybe his interests prejudice him.' But everyone believed Dan" (214).

In addition to his technical reputation, of course, De Quille's extensive experience reading and writing technical rhetoric stood him in good stead when he began his hoaxing with "The Silver Man" in 1865. Judith Yaross Lee summarizes the effect of his rhetorical knowledge: "Dan De Quille knew enough science to fill his tales with incredible facts as well as convincing fantasies. In consequence, the stories conveyed an authentic respect for scientific knowledge in general and a persuasive pride in his own explanation of the 'truth'" (144). As we will see, De Quille's hoaxes deliver a level of scientific "verisimilitude" both in terms of language and knowledge that rivals or perhaps even surpasses Poe's. De Quille stuck to what he knew from experience with his hoaxes—mines, chemicals, and minerals. The prevalence of these topics in the everyday lives of his readers, coupled with his stand-up reputation as a science writer, made De Quille a formidable hoaxer.

3. DE QUILLE'S HOAXES

"A Silver Man" was De Quille's first "deliberate tall-tale creation" (Loomis 29). G. Grant Loomis refers to these creations as "scientific tall tales" rather than hoaxes, an important difference in terminology that we will return to in the Discussion section of this chapter. However, Loomis has made a careful assay of De Quille's scientific "sells" or "quaints," as the author referred to them. He found, in addition to the four major hoaxes considered in this chapter, 12 other minor squibs having to do with fantastic discoveries in geology, biology, or

paleontology, all completely made up, most appearing in the Territorial Enterprise between 1867 and 1878. A complete list of these can be found in Loomis's article "The Tall Tales of Dan De Quille." In addition to Loomis's 12, I have found a copy of one other hoax and mention of three more—the "Mountain" or "Highland Alligator" hoax, which drew a letter from the famous fossil collector Edward Drinker Cope; a hoax remembered by C.C. Goodwin having to do with the "excessive" water in the Comstock mines being an offshoot aquifer of Lake Tahoe; a hoax Wells Drury reported about a perpetual-motion windmill; and, a hoax about a scientist hatching a live bird from a genetically engineered egg. In this chapter we will focus on De Quille's four most notorious hoaxes, along with Cope's letter about the "Mountain Alligator."

3.1 "A Silver Man" (1865)

As I have done in past chapters, I will use De Quille's first hoax to set up the major topics and issues concerned with his reading of reader expectations about science news. Then, we will consider his other major hoaxes and reader reactions to them before adjusting the filter of science reading expectations to reflect the milieu of De Quille's hoaxing. In some ways "Silver Man" is not the ideal hoax to begin with because, as C. Grant Loomis attests in his search for reprints in other papers after the publication date, "the story seems to have passed without any particular notice" (37), which is not the case with De Quille's later hoaxes. However, in this first hoax De Quille introduces all the rhetorical strategies he will continue to develop in his later hoaxes: an "Emperor's New Clothes" style of presuppository argument; emphasis on witness; argument for

plausibility via analogy; and, skillful exploitation of the codependence of doubt and belief. He also uses a unique form of *refutatio* in which he monitors his readers' interpretive process on-line, so to speak, and adjusts his arguments to cater to what he believes to be their highest-ranked expectations.

"The Wonder of the Age: A Silver Man" appeared in two long columns on pages three and four of the 5 February 1865 edition of the Golden Era, the San Francisco paper that first employed De Quille after his arrival in the territories. Two advertisements for the piece appeared on page one: "The Marvelous 'Silver Man' is described by Dan De Quille in another column"; and, "Dan De Quille, the Sage Brush Humorist of Silver Land, discourses on a scientific subject with the spirit of a true savan." While these announcements have a coy tone, they may, first of all, have gone unnoticed by readers, sandwiched as they were down in the lowest columns of the first page; secondly, they may not have prejudiced readers against the truth of De Quille's argument, since as argued earlier, he had been a contributor of mining news to the Golden Era for five years at this point, and his readers knew that he wrote both serious and humorous scientific news. Therefore, readers were likely committed to judge for themselves at this stage, as De Quille himself expected them to (Lee 142).

The entire story is too long to quote here, but it concerns a man found turned entirely to silver—all the way down to silver pyrite crystals encrusting the cavities in his bones and between his garments—down in the "Hot Springs Lead" deposit in a local mine. De Quille begins with an argument for the credibility of the finding in spite of its incredible appearance. He goes on to cite the individuals

involved in the discovery, to give the history of the lead deposit and the mine in which it was found, and to relate the details of the discovery itself. The article finishes first with a statement that many witnesses have seen the "Silver Man" (which, unfortunately, was deteriorating so rapidly from oxidation that it would not be viewable much longer), and with a lengthy analogy to two similar findings, one in a Swedish mine, and one by a French chemist.

Immediately, we recognize many familiar features of the hoax: the "hot topic" of a mineralized human being in the midst of daily finds of fossils and petrifactions; the plausibility of the well-known location and the "Hot Springs Lead" deposit; the *ethos* leant by the witnesses and the foreign scientists; and, the minute details of the mineralization process. However, De Quille uses some rhetorical strategies we have not analyzed in previous hoaxes. We will consider each in roughly the order they are employed in the hoax. For each, we will answer the question of how the choice of this strategy reflects De Quille's mental model of his readers' expectations.

3.11 The "Emperor's New Clothes" ploy

De Quille opens the hoax with a presupposition that the silver man exists and his readers are already familiar with it: "'"Dear Era:--Everybody, no doubt, has heard of the discovery of the wonderful "Silver Man," found in a mine between Esmeralda and Owen's River" (3). The use of the definite article to introduce "the discovery" and "the silver man" here, in contrast to the indefinite "A Silver Man" of the title, adds linguistic force to a presupposition of existence and publicity for the discovery. Later in the story, De Quille employs a similar

strategy of presupposition. "All who have the least knowledge of palaeontology know that all those wonderful remains of fishes, animals, etc., found in limestone and other rocks, and about which so much is said and written, are not the creatures themselves, but merely their shapes replaced by mineral substances"(4). De Quille, here, is constructing an audience of *savants* by using a "anyone who disagrees with these facts is necessarily ignorant" line of argument.

The pressure on De Quille's readers of this strategy is not immediately apparent unless we return to the self-sufficient Jacksonian pioneer that played the foil to the dupe of many a tall tale in Twain's and De Quille's era. Just as the tall tale depended for its success on hapless outsiders trying to make a show of familiarity with their bizarre new environment in the West, De Quille is trying to force his pioneer readers to acquiesce to his argument by making the alternative to belief unpleasant—looking to everyone else like an un-savvy outsider. It is the "Emperor's New Clothes" strategy, where even though the emperor's senses tell him he is naked, he would rather risk nakedness then a public show of his stupidity. Similarly, De Quille's pioneers would rather risk jumping to the wrong conclusion than being labeled an outsider.

Support for De Quille's attraction to this strategy comes from Neil Harris's analysis of contemporary responses to P.T. Barnum's hoaxes. Harris explains, "Men priding themselves on their rationalist, scientific bent, familiar with the operation of novel machines, aware of the variety of nature, tended to accept as true anything which seemed to work--or seemed likely to work" (72). De Quille's pioneers grew up in the same exciting era of industrial genesis and

possibility as Barnum's viewers; most of them had lived in that technologically-charged Eastern environment just a few years prior to reading De Quille's articles. Accordingly, they may have felt the enormous social pressure that came with the Jacksonian territory, the pressure to appear self-sufficient or risk seeming un-American. Therefore, in situations where they knew themselves to be under-educated, De Quille's readers may have thought it best to make a show of competency. De Quille seemed to be counting on his readers' need to appear knowledgeable when he employed the "Emperor's New Clothes" rhetoric to coerce belief in his hoax.

3.12 Refutatio

With the presuppository strategy, De Quille shows himself sensitive to what he believes is his readers' desire to appear on top of the latest developments in science (related to their Novelty expectations). With his unique *refutatio* strategy, he makes an argument that Plausibility is even more important to his readers. Almost immediately in "Silver Man" he injects a rebuttal argument:

> Everybody, however, has not heard the full particulars of the discovery, and many will hoot the idea of any such discovery ever having been made.
>
> They will at once say that it is impossible for a human body to be changed to silver ore--Let them have their say!
>
> Although the story is almost too much for belief, yet I hope to be able to show, before finishing this account, that, startling as the assertion may appear, such a change in the substance of the human body is not only

possible, but that there is on record one well authenticated instance of a similar changing of a human body into a mass of ore. (3)

Here, De Quille constructs readers who are not impressed by the sensation and novelty of the silver man but instead "hoot" at its "impossibility." He models for himself a "false" interpretive judgment they might have made in the face of the conflicting expectations of Novelty/Sensation and Plausibility. To try to correct this "false" impression, De Quille reassures his readers he will indeed offer arguments through logic and real-world analogy that will satisfy their high-ranked expectation of Plausibility. Thus, his *refutatio* is a meta-rhetorical strategy, an attempt to persuade by intervening in the interpretive process—just as his hoax is an attempt to persuade through intervention in the process of science popularziation. De Quille immediately proceeds to make an interesting variation of the "mystery" move from our antebellum hoaxes:

> We have had all kinds of astonishing discoveries. Many things formerly classed among the impossibilities are now familiar, every-day possibilities. We are now to acknowledge that it is not impossible for a human body to be changed—through contact in a mineral vein with solutions of certain salts, carbonic and hydrosulphuric gases, and the electrical currents induced by the reaction of said solutions upon each other—into a mass of sulphuret of silver. (3)

Instead of the traditional "mystery" opening, this is an "anti-mystery" argument about the power of science to demystify what has previously seemed awesome and supernatural. This rhetorical strategy is a marked change from the

rhetoric of the 1830s where science and mystery cooperated. De Quille's appeal to scientific fact and jargon (Plausibility, Popsci., and Detail) are time-honored strategies. However, this time they are meant to reassure, not to overwhelm, his readers as miners were familiar with these compounds from the reactivity tests they routinely performed on ore to determine if it contained silver.

It appears from this *refutatio* strategy that De Quille believed himself to be dealing with a readership that was less swayed by Novelty than by Plausibility. This conclusion is borne out by his next strategy, which is the establishment of multiple witnesses to the discovery.

3.13 Witness

De Quille provides copious witnesses to the silver man, but these do not provide the same sort of *ethos* provided by De Quille's attention to his readers' Foreign expectations in the article, i.e., the name-dropping of the foreign Swedish mine where a man was found turned to copper and the French geochemist de Senarmont. Instead, Kuhlman and the miners who discover the silver man in De Quille's story, along with the "scientific friend" of Kuhlman's in Aurora, the viewers of the silver man, and De Quille himself, who saw a button of silver produced from the silver man—these locals provide a vicarious experience of witness for the hoax's readers.

Newsreaders counted on journalists to bear witness to things the readers themselves did not have access to, and thus to construct for them much of the world that spread beyond the realm of their senses. This was doubly true in De Quille's milieu, where pioneers did not have readily available to them

independent sources for confirming or denying the truth of what was printed in the newspapers. This coerced trust between reader and journalist helps explain some of the personal animosity that is still directed toward hoaxers today when their hoaxes are exposed. What is at stake is not just the journalist lying; the world the reader has been living in suddenly does not hold true.

De Quille seemed to sense the importance of vicarious witness because he anchored the truth of the "silver man" to the experiences of character types his readers would trust—local miners, journalists, and scientists. As in birdwatching, De Quille knew it took more that just his witness of the silver man to make it exist for his readers.

3.14 Analogy

Throughout the "Silver Man," but especially in the later sections, De Quille makes arguments for the plausibility of the silver man by analogy. He harps at some length upon the analogy of several Swedish miners found turned to copper. (Odds are good he fabricated this analog, making the "Silver Man" in actuality a sort of Russian nesting-doll of hoaxes.) He also mentions, as quoted above, the fossilization of fishes and other animals, a process similar to the mineralization of the silver man which De Quille knew his readers would find familiar. He finishes with an analogy to crystallization processes studied by M. de Senarmont, an actual French chemist.

Argument by analogy was one of the original components of Popsci. However, Analogy takes on additional significance given a new reading context: the conditions of life on the frontier. Anyone who has spent any time in the West

knows (!) that the majority of place names are analogies to forms or places in the homelands of the pioneers; thus, you have New England, and Glasgow, Montana, and Paris, Texas. Geologic forms are also usually named for what they resemble—camels or wagons or breasts.[22] Naming by analogy is a way to reduce the complexity and threat of a foreign environment. By relying on analogs as a central proof in the "Silver Man," De Quille counted on his readers to use the same epistemological strategy when considering his hoax as they did in their everyday lives on the frontier—and to use it to his advantage.

3.15 Codependence of Belief and Doubt

De Quille makes a move in "Silver Man" that seems odd at first if we assume that his first priority is to present a seamless hoax. He acknowledges his readers' doubt by admitting his own, albeit on minor points of the narrative. In describing the silver man, De Quille writes, "The body is supposed to be, and doubtless is, that of an Indian; but in its present changed state it is impossible to be certain on that point" (3). He reintroduces the impossibility of proving the "Silver Man" a bonafide artifact at the end of the story:

> I might say much more in proof not only of the fact of a human body so changed having been found, but of the simple and natural causes which have operated to produce a change which at the first glance appears so wonderful; however, as many would not believe, even though I should

[22] The obvious shortage of landforms named for male sex organs, in spite of the abundance of glaringly suggestive opportunities in the West, raises a naïve but still interesting connection between strange landscapes and gendered Others who must be feared and dominated.

> produce the body and melt it up into buttons before their very eyes, I refrain. (4)

De Quille's rhetoric of doubt and belief here conflates the two at every turn. First, he uses the word "doubtless," which introduces his readers' "doubt" even as it implies they should be sure of what De Quille reports. He argues twice for the impossibility of proving the silver man genuine, but the somewhat sarcastic reason he provides is that some of his readers would doubt no matter what ironclad proof he offered them. In this way, De Quille cleverly constructs a believing readership on the "Emperor's New Clothes" paradigm again, this time by providing a negative model for their interpretive behavior: in paraphrase, "Only ignorant readers masquerading as skeptics could still doubt this story." And no one wants to be in that crowd. Because there is no extant reader reaction to the "Silver Man" hoax, we cannot gauge the extent to which readers responded to De Quille's manipulations of belief and doubt in this hoax, but De Quille's focus on these techniques testifies to his belief, as a member of his own readership, in their effectiveness.

In addition to the "Emperor's New Clothes" game with belief and doubt, De Quille is making an argument about the fundamental codependence of these interpretive modes, one which finds resonance across mid-nineteenth-century American culture, according to Neil Harris. Harris argues that P.T. Barnum's hoaxes succeeded because Americans knew just enough science to make them insecure about how much they really knew:

> American experience with science and technology was crucial to the hoaxing attempts, but this experience led not to less credulity but to more. A vital factor in the success of the hoaxes was national skepticism itself. Men accustomed to examining the truth or validity of every person, idea, object or act presented to them—as Americans proverbially were—became easy targets for pseudoscientific explanations, for detailed descriptions of fictional machinery, for any fantasy that was couched in the bland neutrality of a technological vocabulary. (72)

In other words, doubt actually fostered belief in the presence of sufficient social pressure to appear a man or woman of independent judgment. Harris argues this constant tension between doubt and belief, i.e. skepticism, provided an almost erotic thrill to the viewers of Barnum's hoaxes—an illicit determination of one's own reality without the sanction of authorities or institutions.

Harris points out, as we discussed in Chapter Two with respect to Poe's and Locke's hoaxing, that "the exposure of sham was the negative image of the practical joke, and both appealed to the same sensibility. Many deceivers were also exposers, since the two processes fed public fascination for information and detail" (82). Edgar Allan Poe revealed Maelzel's Chess Automaton to be a fake but went on to write his own hoax ("Von Kempelen and His Discovery") about the family who had built the automaton in Europe. Richard Adams Locke publicly exposed one of Barnum's hoaxes in the Sun not long after concocting his own "Moon Hoax."

The motions of concealment and exposure, and the motions of belief and doubt, share the same epistemological arc between the unknown and the judging mind, between the data of the senses and the evaluation of that data. On the receiving end, that arc could be described just as De Quille defined the responsibility of his readers, "deciding for themselves." On the authorial end, that arc is the sheer pleasure of using words to construct realities for a public kept constantly at a distance by those words from firsthand experience of those realities. This was De Quille's game, and he refined it over the next 35 years through the publication of three more major hoaxes.

3.2 "Solar Armor" (1874)

On 2 July 1874 a story appeared in the Enterprise about the untimely death of a Nevada inventor. Entitled "Sad Fate of An Inventor," it described an invention gone horribly awry:

> A gentleman who has just arrived from the borax fields of the desert regions surrounding the town of Columbus, in the eastern part of this State, gives us the following account of the sad fate of Mr. Jonathan Newhouse, a man of considerable inventive genius. Mr. Newhouse had constructed what he called a "solar armor," an apparatus intended to protect the wearer from the fierce heat of the sun in crossing deserts and burning alkali plains. The armor consisted of a long, close-fitting jacket made of common sponge and a cap or hood of the same material; both jacket and hood being about an inch in thickness. Before starting across a desert this armor was to be saturated with water. Under the right arm was

suspended an India rubber sack filled with water and having a small gutta percha tube leading to the top of the hood. In order to keep the armor moist, all that was necessary to be done by the traveler, as he progressed over the burning sands, was to press the sack occasionally, when a small quantity of water would be forced up and thoroughly saturate the hood and the jacket below it. Thus, by the evaporation of the moisture in the armor, it was calculated might be produced almost any degree of cold. Mr. Newhouse went down to Death Valley, determined to try the experiment of crossing that terrible place in his armor. He started out in to the valley one morning from the camp nearest its borders, telling the men at the camp, as they laced his armor on his back, that he would return in two days. The next day an Indian who could speak but a few words of English came to the camp in a great state of excitement. He made the men understand that he warned them to follow him. At the distance of about twenty miles out into the desert the Indian pointed to a human figure seated against a rock. Approaching they found it to be Newhouse still in his armor. He was dead and frozen stiff. His beard was covered with frost and—though the noonday sun poured down its fiercest rays—in icicle over a foot in length hung from his nose. There he had perished miserably, because his armor had worked but too well, and because it was laced up behind where he could not reach the fastenings. (ctn. 1, fldr. 120)

This hoax has the full-fledged form of a news article. It starts with a summary of the "sad fate" of the inventor and then moves to the details of the

story—the who, what, when, where, why and how. It finishes with an analysis of how the death must have transpired. Terse and to the point, it avoids a great deal of the rhetorical flights of the "mystery" openings and "benefits to mankind" conclusions that the 1835 hoaxes and science articles exhibited. As evidenced by De Quille's science writings about dowsing and other "mysterious" phenomena, science now provided natural explanations for many things that had theretofore seemed supernatural or mysterious. This may account for the stripping of the grandiose language from hoaxes written after 1865. However, science and nature also presented pioneers with many experiences and objects that were beyond the pale of their experiences back East. De Quille definitely exploited this "supernatural" aspect of scientific inquiry when presenting a man freezing to death in a roasting desert.

De Quille includes many scientific details about the solar armor that would satisfy readers Detail expectations as well as their Plausibility expectations, like the careful description of the pump apparatus. As Poe did with his balloon, De Quille walks readers through the workings of the pump rhetorically to actually *create* a working pump in their imagination. He adds to these appeals the appeal of local eyewitnesses in the forms of prospectors, again, and an Indian. Readers' Novelty and Sensation requirements are certainly satisfied in the irony of death by freezing in Death Valley.

The most interesting aspect of this hoax, however, is its reprinting history. The story was copied widely, and we have many of these reprints thanks to De Quille scrapbooking them and mentioning specific reprinting papers and dates.

He wrote to his sister Lou Wright on 23 August 1874, "My story of the man who was frozen to death by a solar armor of his own invention was illustrated in one of the Eastern pictorials. It was not well done, however. The artist made a horrible looking beast of poor Woodhouse. The *Scientific American* thought enough of that sell to copy it, it being somewhat in their line" (3). The Scientific American reprint De Quille refers to here was on 25 July 1874. The editors' introduction to the story, titled "Sad Fate of a Nevada Inventor" was rather coy: "The coolest and most refreshing item we have read since the commencement of the heated term lately appeared in the Virginia City (Nevada) *Enterprise*" (51). However, the editors went on to reprint the story almost verbatim, and it appeared not on the first page, where jokes and anecdotes usually appeared, but on page 51 alongside engravings of a new "Apparatus for Transplanting Trees" as well as a description of "A New Alkaloid from Morphine" and an innovative air-conditioning system used in the House of Commons in London.

We know the story was also reprinted in several New York papers, including the Sun, for which De Quille was a regular Western correspondent. De Quille's colleague at the Enterprise, C.C. Goodwin, reported that De Quille received a copy of the London Times in the mail with a copy of the "Solar Armor" story in it, including recommendations by the editor that the British Army consider the armor for equipping its soldiers in India and other hot climates (Goodwin 216). Goodwin claimed that De Quille bracketed the story with an elaborate picture of a man thumbing his nose (reminiscent of the posture of Twain's "Petrified Man" !) and mailed the paper back to the English science

writer. Delancey Ferguson discredits Goodwin's report because, according to his research, the hoax never made it to the Times (193). However, Ferguson checked the Times for 1862, the year of Twain's hoax, and not 1874, the year of the "Solar Armor" hoax. The story does indeed appear in the London Times on 27 July 1874 under the title "Too Successful" with no editorial criticism. However, this article makes no mention of using the solar armor for British troops.

The London Daily Telegraph for 3 August 1874 reprinted the story, and it is worthwhile considering their editor's comments because they become the catalyst for De Quille's next installment of the hoax. The Daily Telegraph editor prefaces the story with a brief description of Virginia City and the scalding desert to the east of it, which makes "men—and even wagons, with their teams of from eight to sixteen mules or oxen—to sink overwhelmed with heat and thirst when an effort is made to cross this desert in summer." This description seems to validate Newhouse's ultimately tragic quest for a "solar armor" to combat the heat. However, the Daily Telegraph finishes with this evaluation:

> The marvelous stories which come from 'the plains' are apt to be received with incredulity by our transatlantic kinsmen who dwell upon the Eastern seaboard of the United States. We confess that, although the fate of Mr. Newhouse is related by the Western journal *au grand serieux*, we should require some additional confirmation before we unhesitatingly accept it. But every one who has iced a bottle of wine by wrapping a wet cloth round it and putting it in a draught, must have noticed how great is the cold that evaporation of moisture produces. For these reasons we are

> disposed to accept the tale from Virginia City in the same frame of mind which Herodotus, the Father of History, usually assumed when he repeated some marvel that had reached him—that is to say, we are neither prepared to disbelieve it wholly nor to credit it without question. (ctn. 1, fldr. 120)

The editor for the Daily Telegraph lets us glimpse the competition between his expectations that leads to a suspension of judgment. First, he cites the "marvelous" quality of the story in a negative light. His comments may reference a shift in attitude about the Sensation expectation since 1835: namely, as the English have gained far more control over their environment through science and technology than have American pioneers, Sensation might actually acquire a negative valence for the English popular scientific press, since sensational events resist the control and logical consistency of a scientific epistemology. It is of course impossible to know the connotations of the editor's use of "marvelous," but the latter suggestion deserves further inquiry.

In addition to the negative light of "marvelous," the editor cites the dubious authority of newspapers from 'the plains' as a weak point of the story (Medium). However, he goes on to counterbalance these negative points with the conformity of the story to Popsci. expectations, "*au grand serieux*." He adds to the positive column a supporting analogy of cooling by evaporation (Plausibility). "For these reasons," the writer concludes, the Daily Telegraph suspends its judgment. The editor's interpretive activity can be represented graphically as in Table 20:

Table 20: Editor's suspended judgment about "Solar Armor" hoax

	Sensation (-)	Medium (-)	Popsci.	Plausibility
True	*	*		
False			*	*

If the editor had made a judgment, we would have an indication of which expectations mattered more to him; a check mark would appear by "True" or "False" to indicate his decision. As it is, the suspension of judgment tells us that sensationalism, the reputation of the medium, the conformation of the article to Popsci. conventions, and the plausibility of the topic are all equally ranked in his view; this lack of ranking is indicated by dotted lines. Accordingly, the violations add up to a tie, at two for each candidate interpretation ("true" or "false"). If the editor committed to believing the story, he would have to violate his usual assumption that sensationalism is untrustworthy (here, I am testing out the negative-valence Sensation, or Sensation [-]); he would also have to violate his usual assumption that the Enterprise lied. On the other hand, if he committed to believing the story false, he would have to violate the demonstrated scientific plausibility of cooling by evaporation, and he would have to violate his usual assumption that if an article sounded like a genuine science article, "*au grand serieux,*" that it indeed was. Faced with this stalemate, the writer indicates that he is waiting for more information, which might add the crucial violation or two that would shift the balance in favor of either a true or false interpretation.

He might have had stronger feelings that would have swayed the ranking of expectations if the decision mattered more to him, if he had been a miner or inventor in Nevada rather than an editor in England. As David Kaufer and

Kathleen Carley point out in their study of the social dynamics of print, major factors in the acceptance of printed claims include a desire to engage with the author through the text, and a sense of cognitive similarity with the text and author (300). The editor lacked both of these dynamics, and so his interpretation of the story would have been very different than if he lived in Nevada, felt similarity with the characters in the "Solar Armor" story and with Dan De Quille, and felt he owed it to himself or someone else to make a decision about the truth value of the story.

De Quille used this editor's doubts as a springboard to launch the second installment of his hoax, "A Mystery Explained.—The Sequel to the Strange Death of Jonathan Newhouse, the Inventor of the Solar Armor." The sequel, a strategy perhaps suggested by Mark Twain's sequel to "Petrified Man," appeared in the Enterprise on 30 August 1874. In it De Quille presents the Daily Telegraph editor as a doubter:

> …as the truth of our narration appears to be called in question, if not directly at least impliedly, by a paper which enjoys the largest circulation of any daily newspaper in the world, we feel that it is but right that we should make public some further particulars in regard to the strange affair—particulars which throw a flood of light upon what, we must admit, did appear almost incredible in our account of the sad occurrence as published. It seemed strange that so great a degree of cold could be produced simply by the evaporation of water, but it now appears that it

was not water—at least not water alone—that was used by the unfortunate gentleman. (ctn. 1, fldr. 120)

De Quille continues to focus his appeal on scientific plausibility and internal consistency here (Plausibility and Internal Coherence). Sensation and Novelty wear off quickly; a month after the first installment of "Solar Armor," their effects must have been greatly diminished if not vanished altogether. (Eye)Witness and Plausibility are what count now, and De Quille provides these in spades. He claims that David Baxter, the Coroner at Salt Wells, performed an inquest on the body of Jonathan Newhouse and goes on to list all of Newhouse's statistics, including place of birth. The text of the inquest, inferred rather than quoted, is a metonym De Quille uses to argue for the reality of the "Solar Armor"; i.e., the coroner's report exists and is true, so by extension the "Solar Armor" must exist. De Quille would develop this strategy of textual witness even further in his last two hoaxes.

Next in the sequel, De Quille produces more witnesses—prospectors at the camp from which Newhouse began his fateful walk. These men apparently found a satchel of Newhouse's that contained chemicals that intensified the evaporation within his solar armor, thus freezing him to death. Several of the witnesses reported frostbite on their hands from handling the body. The Coroner supposedly tells De Quille that he is sending the chemicals on to the Academy of Sciences at San Francisco (a genuine organization) for analysis. De Quille wraps up, however, with his signature performance of doubt. "Whether or not he has done so we cannot say. For several weeks we have closely watched the reports of

the proceedings of the learned body named, but as yet have seen no mention made of either the chemicals or the armor."

This article spawned a new flurry of reprinting on the East Coast as papers responded both to the Daily Telegraph criticism and to De Quille's new installment. The New York Sun defended itself for having publishing the first installment in good faith by now reprinting the "additional proof" of the coroner's report on 17 September 1874 (ctn. 1, fldr. 120). The New York World took a slightly cagier approach. It started off, "About two months ago the Virginia City Enterprise, of Nevada, a journal that so ingeniously mingles fact with fiction that its readers are never weary of exclaiming, 'Well, I wonder!' related the incidents connected with the demise of Mr. Jonathan Newhouse…." The World next juxtaposed the Telegraph's complaints with De Quille's rebuttals, ending with an tongue-twisting list of the chemicals from the "inquest": "'Ammonic nitrate,' 'Sodic nitrate,' 'Ammonic chloride,' 'Sodic sulphate,' and 'Sodic phosphate.'" The article at last concluded, "Let the *Telegraph* now fold it hands, murmur '*Si non e vero*,' &c., and be satisfied'" (ctn. 1, fldr. 120). *Si non e vero, e ben trovato* translates roughly, "If it's not true, it's well done/worked" and is reminiscent of Poe's claims that if his inventions did not actually exist and work, it was not because they *could* not. The World thus seems to take De Quille's sequel as demonstrating a level of authority beyond which it is fruitless to argue, whether or not you believed the story.

Overall, the second wave of debate about the "Solar Armor" hoax focused positively on the testimony of the coroner and the further scientific justification

De Quille provided. This reaction confirmed the efficacy of the strategies of local/textual witness and scientific plausibility that De Quille was refining through this hoax. Also, the editors of the reprinting papers focused on the *fact* of De Quille's sequel itself as authoritative proof of the verity of the "Solar Armor," providing powerful reinforcement for De Quille to produce sequels to his other hoaxes, most notably the "Traveling Stones" hoax, which boasted a public half-life of 25 years.

3.3 "Traveling Stones" (1867, 1876, 1879, 1892)

The "Traveling Stones" hoax was De Quille's most famous and the longest-running, its installments spanning 25 years. The story was about magnetic stones that would move from wherever they were placed and cluster together. It first appeared in the Enterprise on 26 October 1867 and was reprinted in his history of Nevada mining, the Big Bonanza, in 1876. Here is the version that originally appeared in the Enterprise:

> A gentleman from the southern part of Pahranagat, who passed through this city a day or two since on his way to Sacramento, Cal., showed us a half a dozen or so of very curious pebbles—not curious in appearance, but rather curious in action. They were almost perfectly round, the majority of them nearly as large as a black walnut, and appeared to be of an irony nature. About the only remarkable thing about these pebbles—and it struck us as rather remarkable—was that when distributed about upon a floor, table or other level surface, within two or three feet of each other, they immediately began traveling toward a

> common centre and there huddled up in a bunch like a lot of eggs in a nest. A single stone, removed to the distance of three and a half feet, upon being released at once started off with wonderful and somewhat comical celerity to rejoin its fellows; taken away four or five feet it remained motionless. Mr. Hart, the gentleman in whose possession we saw these rolling stones, says they are found in a region of country that, although comparatively level, is nothing but bare rock. Scattered over this barren region are little basins, from a few feet to a rod or two in diameter, and it is in the bottom of these that the rolling stones are found. They are from the size of a pea to five and six inches in diameter. The cause of these stones rolling together is doubtless to be found in the material of which they are composed, which appears to be loadstone or magnetic iron ore (3).

In spite of the wink-and-nudge use of the word "irony" in the second sentence, De Quille expends some effort in making the stones sound genuine. The best lie, as they say, is one that has a lot of the truth mixed in, and De Quille got his inspiration for this hoax from actual geologic discoveries. Among the newspaper clippings in his papers at the Bancroft are an article on the "seven wonders of Corea including a floating stone…" and a "hot stone glowing on top of a high hill" (ctn. 2, fldr. 98). He also clipped an article entitled "Are Stones Alive?" (ctn. 2, fldr. 3). The hoax also contains many familiar features including a trustworthy local "gentleman," the mystery language of "very curious" (although the opening of the piece is still straightforward "who, what, when,

where, why" rhetoric), and a scientific explanation of the stones' behavior due to their composition of "loadstone or magnetic iron ore."

This hoax apparently worked spectacularly well. Contemporary Wells Drury describes De Quille getting an offer of $10,000 for a "few bushels" of the stones from P.T. Barnum, on the condition that they could be made to perform under the big top. De Quille also supposedly received a request from a German physics society to examine the stones (Drury 212-213). These requests are not extant in De Quille's papers, but neither allegation is unlikely, as we know that De Quille's previous stories were reprinted in European papers, and that Barnum was always on the hunt for new attractions to add to his shows.

The rhetoric of this initial phase of the hoax is relatively pedestrian, but its rhetorical history is fascinating, for De Quille, encouraged by the success of his sequel to the "Solar Armor" hoax, added two more installments to the "Traveling Stones" hoax over the next 25 years. The next installment appeared in the Enterprise on 11 November 1879 (quoted from Dwyer and Lingenfelter):

> …the story of the little traveling stones seemed to supply a want that had long been felt—to fit exactly and fill a certain vacant nook in the minds of men—and they traveled through all the newspapers of the world. This we did not so much mind, nor were we much worried by letters of inquiry at first, but it has now been some years since we ceased to enjoy them. First and last, we must have had bushels of letters asking about these stones. Letter after letter have we opened from foreign parts in the expectation of hearing something to our advantage—that half a million had been left us

somewhere or that somebody was anxious to pay us four bits a column for sketches about the mountains and the mines—and have only found some other man wanting to know all about those traveling stones.

So it has gone on all these fifteen years. Our last is from Tiffin, Ohio, dated Nov. 3, and received yesterday. His name is Haines, and he wants to know all about those stones, could he obtain several and how? Not long since we had a letter from a man in one of the New England States who informed us that there was big money in the traveling stones. We were to send him a carload, when he would exhibit and sell them, dividing the spoils with us. We have stood this thing about fifteen years, and it is becoming a little monotonous. We are now growing old, and we want peace. We desire to throw up the sponge and acknowledge the corn; therefore we solemnly affirm that we never saw or heard of any such diabolical cobbles as the traveling stones of Pahranagat— though we still think there ought to be something of the kind somewhere in the world. If this candid confession shall carry a pang to the heart of any true believer we shall be glad of it, as the true believers have panged it to us, right and left, quite long enough. (22)

De Quille seems to derive no little pleasure from the "pang" his revelation is causing the Eastern businessmen and other believers in his hoax, although no evidence of these letters exists other than Drury's testimony to Barnum, the "man in one of the New England states," offering to pay $10,000 for the stones. Interestingly, however, De Quille backs away from disavowing the stones'

existence altogether, hinting that he might have been prescient rather than a flat-out liar. This hint will turn into a strategy of hoax perpetuation in the final installment of the "Traveling Stones" hoax. Notice also another innovation De Quille is making with the Witness expectation. Instead of merely mentioning eyewitnesses, as he did in the "Silver Man," hoax, De Quille is now citing textual evidence, "letters" from other believers. The mere mention of these texts serves to reify the existence of the traveling stones in readers' imaginations.

On 6 March 1892, a story called "The Traveling Stones of Pahranagat" appeared in the Salt Lake Daily Tribune as part of an article entitled "Undesirable Thriftiness." In it the story, De Quille explained that he had written his original "Traveling Stones" hoax with another object, in addition to teasing his readers, in mind; he had put it out as a "feeler." He claimed, "My object was to set the many prospectors then ranging the country to looking for such things." He went on to state he had confessed the hoax only out of exasperation with all the requests he received for the stones. From there, the article took an interesting turn:

> Shortly after I denied the existence of the traveling stones, I began to receive assurances that such stones had really been found in central Nevada. Among others who had found and owned such stones was Joseph E. Eckley, present State Printer of Nevada. Mr. Eckley has several times told me of his having owned a lot of such stones which he was a citizen of Austin, Lander county. He obtained them in Nye county on a hill that was filled and covered with geodes. Most of these geodes contain crystals of various colors. These are not the traveling kind. Those that appear to be

> endued with life are little nodules of iron. They are found on the hill among the geodes, and it was only by accident that Mr. Eckley discovered their traveling propensities. He had the stones he found for some months, and frequently exhibited them. This finally led to their being stolen, some one breaking open his cabinet and carrying them off. Mr. Eckley is a truthful man. He now resides in Carson City, and doubtless would be able to give further particulars in regard to the stones he discovered.

Not satisfied with this single appeal to eyewitness, De Quille went on to reprint a "letter" from another prospector in Idaho who claimed to have found traveling stones in Humboldt County and offered to go get them so Nevada could present them at the next World's Fair. His citation of textual authorities to satisfy readers' desires for vicarious witness has at this stage turned into full-blown forgery of these supporting texts. He is expanding on the "Russian nesting doll" strategy of embedding hoaxes within hoaxes that he began by inserting the fake analogy of the Swedish "copper man" in the "Silver Man" hoax.

A more pressing question about this last installment of the "Traveling Stones" hoax is the following: why would De Quille revive this hoax after having exposed it thirteen years before? His motivation is impossible to reconstruct, but his arguments in the last installment of the hoax lead to some suggestive conclusions that show him developing other strategies nascent in the "Silver Man" hoax. In addition to the striking development of textual Witness, this last installment of the "Traveling Stones" contains a greater weight of scientific detail about geodes and iron nodules in order to lend plausibility to the tale (Detail,

Popsci., Plausibility). De Quille is also developing the codependence between belief and doubt in his hoaxing. By exposing his hoax in 1879, he simultaneously corroborated the convictions of those who had originally disbelieved the story and undermined the convictions of the original believers. His tactics of reviving the hoax in 1892 complicate his relationship to these readers enormously. This time he claims that he himself, once a doubter, has been made a believer by the appearance of "testimonials" to the stones' existence. His stated plan to "flush out" the real stones by publicizing fake ones has worked; he has literally made the stones materialize with his rhetoric. Now, De Quille's original believing readers are vindicated, and it is the doubters' turn to be ashamed of their lack of faith in De Quille.

In "The Force of Falsity," the first essay in Umberto Eco's 1998 collection Serendipities: Language and Lunacy, Eco discusses historical situations very close to the one De Quille constructed with his "feeler" story about the traveling stones. Eco examines important forgeries and shows how they sometimes led, outside the intention and control of their creators, to serendipitous discoveries. For example, a wishful underestimation of the earth's circumference based on Ancient Egyptian geometry by a 15th-century geographer motivated Columbus to attempt a Westward route to the East Indies, thus leading to the discovery of the East Indies. Eco's argument extends beyond the merely historical, however; in addition to showing how documents could change the course of history, he suggests that intuition and desire, in the absence of empirical fact, are powerful heuristics of discovery. Eco's examples tend to conflate deliberate forgeries with

self-delusional theories because his focus is really on how these documents were read and acted upon by others. De Quille's "Traveling Stones" hoax was a deliberate hoax, not a self-delusion, and his argument that his hoax turned up the "real deal" is equally a fabrication as far as we know. Primarily the hoax served a function outside Eco's field of view—the embarrassment of "outsider" Eastern businessmen and scientific entrepreneurs. But De Quille's "feeler" strategy, when viewed from the angle of Eco's analysis of historical forgeries, forges hard-cast historical authority for De Quille as a literal creator of the West and its scientific phenomena.

So, the 25-year attenuation of the rhetorical game De Quille played with his readers through his "Traveling Stones" hoax makes two important epistemological arguments: first, that truth is often judged simply as a function of persistence, and that readers' ongoing debate over the verity of a story merely serves to cement the authority of its writer as an oracle of natural reality. With the "Traveling Stones" saga, De Quille developed strategies of testimony that kept his readers ever on the edge of their judgment, all the while cleverly increasing their reliance on him for "information and detail," as Neil Harris put the case for Barnum's authority over his audience (82). As De Quille's readers constructed their realities, however they chose to do so, they had to go through him and his words. He was a rhetorical magician who made stones literally appear and disappear at whim. It is perhaps telling that eight years after his last installment,

stones that appeared to move on their own were reported at the Racetrack Playa in Death Valley, and they are called "traveling stones" by many to this day.[23]

3.4 "Eyeless Fish" (1876)

The "Eyeless Fish" story was De Quille's final major hoax, not counting the sequels to the "Traveling Stones." It appeared as "Mystery of the Savage Sump" on 19 February 1876:

> A most singular discovery was yesterday made in the Savage mine. This is the finding of living fish in the water now flooding both the Savage and Hale and Norcross mines. The fish found were five in number, and were yesterday afternoon hoisted up the incline in the large iron hoisting tank and dumped into the pump tank at the bottom of the vertical shaft. The fishes are eyeless, and are only about three or four inches in length. They are blood red in color.
>
> The temperature of the water in which they are found is 128 degrees Fahrenheit—almost scalding hot. When the fish were taken out of the hot water in which they were found, and placed in a bucket of cold water, for the purpose of being brought to the surface, they died almost instantly. The cold water at once chilled their life blood.
>
> In appearance these subterranean members of the finny tribe somewhat resemble gold fish. They seem lively and sportive enough while in their native hot water, notwithstanding the fact that they have no

[23] See www.desertusa.com/who/mar_ebag.html for one account and www.geosci.unc.edu/faculty/ glazner/dvflight/dv.html for some pictures of the stones.

eyes nor even the rudiments of eyes. The water by which the mines are flooded broke in at a depth of 2,200 feet in a drift that was getting pushed to the northward in the Savage. It rose in the mine—also in the Hale and Norcross, the two mines being connected—to the height of 400 feet; that I, up to the 1,800 foot level. This would seem to prove that a great subterranean reservoir or lake has been tapped, and from this lake doubtless came the fish hoisted from the mine last evening.

Eyeless fishes are frequently found in the lakes of large caves, but we have never before heard of their existence in either surface or subterranean water the temperature of which was so high as is the water in those mines. The lower workings of the Savage mine are far below the bed of the Carson river, below the bottom of the Washoe lake—below any water running or standing anywhere within a distance of ten mils of the mine. (ctn. 1, fldr. 120)

The fantasy of this hoax ties in with one of De Quille's "quaints," cited by C.C. Goodwin, about a subterranean lake connecting all the Washoe from Lake Tahoe ("Dan De Quille" 215). De Quille consistently worked and reworked ideas that attracted him over time, as evidenced with the "Traveling Stones." He had clearly been intrigued by reports of unusual fish for quite some time, because his clippings include an article about ten-headed fish supposedly found in China (ctn. 1).

De Quille's own "fish story" ended up being reprinted extensively and attracting high-level scientific attention. De Quille pumped the public enthusiasm

for the fish with three and possibly four follow-ups. A New York paper, probably the Sun, reprinted the story verbatim (ctn. 1, fldr. 120). Reactions to the story by local papers, on the other hand, were split, and the argument quickly derailed into the issue of water in the mines signaling the running-out of the Comstock lode. The Grass Valley Union reprinted the story and reflected, "We regard those fish as evil omen, so to speak. A big cavern full of water will not probably contain much silver ore." The paper went on to carp that the San Francisco merchants were already refusing to take silver "trade dollars" had better mend their ways before silver production fell off dramatically and silver became more dear than gold (ctn. 2, scrapbk. 2).[24]

The San Francisco Stock Report did not like the conclusions the Grass Valley Union drew from the fish story. Its writer grumbled that the Union was not alone in its naïve assumption-making about the "canard" printed by the Enterprise:

> That the story was a palpable "yarn" on its very face to all who understand the conditions of the great mines on their lower levels does not in the least

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[24] "Trade dollars" were a controversial minting of heavy silver dollars by the U.S. Mint in 1873 in order to shoulder the standard Mexican peso out of currency in the Far East. According to numismatic historian Anthony Vigliotta, some of the "trade dollars" trickled back to the States, which they were never meant to and, coupled with a drop in silver stock prices in 1876, created an unfortunate surplus of silver currency, especially on the West Coast. This led to employers abusing their employees by paying them the undervalued trade dollars, which were refused by many merchants as indicated in the Union's response to the "Eyeless Fish" hoax. Overall, silver and "free silver" issues in the West are complicated economic and political problems that cannot be done justice in a short space. A more detailed treatment will follow below in a discussion of De Quille's role in the free silver movement.

> prevent its gaining credit among people who do not understand those conditions, and as the obvious inference is that where there are fish, eyeless or otherwise, there must be water, the story was calculated to injure the mine. A joke is a joke, but such a joke as this becomes serious in its consequences in proportion as it is successful. (ctn. 2, scrapbk. 2)

De Quille followed up with at least three installments, all of which appear to be from the Enterprise. The first appeared the next day and showcased De Quille's famous performance of doubt:

> The local department of the Enterprise of yesterday contained a very nice yarn about fish being found swimming in the water which is now flooding the lower levels of the Savage and Hale & Norcross mines. It is a very Dandequillish story, which, being told on the authority of Col. F.F. Osbiston, Superintendent of the Savage mine, makes us believe it is perfectly true….In fact, the water tastes and smells a little fishy, like the story, and if the fish were a little thicker, it would be merely one extensive chowder.

However, De Quille went on to offer proofs aimed at his readers' expectations of plausibility, through analogy once more (Plausibility, Analogy):

> Strange as this story may appear to the unscientific, yet it is by no means so unnatural as it seems for even the extreme of cold does not always destroy piscatorial life. We have seen small fish frozen solid in cakes of ice for weeks and when thawed out gradually they all came to life and swam about as lively as ever….An uncle of ours was mate of a New

> Bedford whaler in the Summer of 1848, on the coast of Greenland. One day they found a small whale frozen into the side of a huge iceberg. They cut him out, got a clove hitch about his tail, and left him in the water over night to thaw the frost out of him. In the morning they found him alive and towing the ship to windward at the rate of five knots an hour.

In spite of the connotations of the "whale" with respect to his story, De Quille finishes off his proof with an appeal to eyewitness—his:

> Since writing the above, Mr. James Orndorff, of the Delta Saloon, Virginia City, as shown us some of those fish from the flooded Savage mine, their red color is evidently produced by the oxide of iron, found so plentiful in some portions of the west wall of the Comstock. The flesh is very firm, fins and tail short and compact, and the skin rough and corrugated. They have no scales, and look like a cross between a lobster and a sardine. They can be seen at the Delta saloon. (ctn. 2, scrapbk. 2)

This item was coupled by an announcement of the exhibition of the fish, "of a variety well enough known to naturalists" at the Delta saloon attended by "hundreds of prominent citizens" (ctn. 2, scrapbk. 5). De Quille is working all his tricks in these two sequels: *refutatio*, "Emperor's New Clothes" appeal, analogy, witness, and the use of the sequel to perpetuate the illusion of reality for the hoax, intensify the belief/doubt codependence, and thus cement his authority.

Not content with his success to that point, De Quille provided one and possibly two more sequels to the "Eyeless Fish" business. One included the textual authority of a forged "letter" from Maurice May of Franktown, Nevada,

claiming that at Washoe lake lived a little gray version of the red eyeless fish; Mr. May surmised that in the journey through the subterranean water tunnels, the fish must have become blind. He also stated his intentions to sue the Comstock for stealing Washoe Lake's water and fish (ctn. 2, scrapbk. 2). The last installment, continuing in this tongue-in-cheek vein, may not be De Quille's but certainly sounds like it. It takes issue with the Grass Valley Union's alarmist rhetoric and reassures reader that the only subterranean sea-life they need fear is the "mining shark." "This is a terrible creature, with a stomach and throat extended enough to swallow a city at a gulp. This fish has grown very fat since the Comstock was discovered, and the only redeeming thing in his character is the fact that he prefers his own species for food" (ctn. 1, scrapbk. 120). The article turns into a comic allegory of the San Francisco and Eastern mining interests scamming Nevadans.

De Quille's mature hoaxing tactics in the "Eyeless Fish" earned not only a wide readership for the hoax but, more importantly, a request from Spencer Baird, curator of the Smithsonian Institution, for a specimen of the fish preserved in alcohol. Thomas Donaldson, Baird's secretary, wrote to De Quille, "If the statement in the slip enclosed be true, a very important discovery has been made." De Quille's satisfaction with his skillful hoaxing is apparent in the comment he scribbled on the back of the envelope of Donaldson's letter: "A Sold Professor—The 'Eyeless Fish' biz."

3.5 Minor hoaxes and scientific reaction

De Quille wrote many other humorous scientific pieces. Loomis counts twelve other "tall tales" of scientific wonders, including another fish story, an article entitled "Ringing Rocks and Singing Stones," and "The Eucalyptus," reporting a new animal of that name found in the Washoe region. Many of these are brief and fall short of the level of scientific plausibility and tone "*au grand serieux*" that characterized his four major hoaxes. De Quille was full of ideas for more of these stories. His notebooks sketch out ideas for "A Natural Incubator--At Steamboat Springs, hatches all kinds of fowls from a humming bird to an Ostrich--I interview the man who has burn marks and [illegible]…." De Quille attaches a news clipping to his notebook about an "ossified man" who slowly turned to bone. He notes, "I find similar man hidden in a hut awaiting death. He expects soon his heart will turn to bone—kidneys, liver, one lung gone. He is trying vegetable diet (or some diet containing no lime). Lime in everything. He tries to precipitate it, etc" (box 3). We will never know if De Quille was going to develop these stories along a humorous line or a more straight-faced line that would have made them good candidates for hoaxes.

Naturally, it is possible that the reason his four most famous hoaxes succeeded where the minor ones failed is due as much or more to reader interests and agendas. The "Eyeless Fish" certainly hit a sore spot with readers fearful of a future linked to the fate of silver in the West. The "Solar Armor" hoax arrested reader attention with the conundrum of freezing to death in a desert. The "Silver Man," however, attracted almost no attention. I treated it here simply because it

was the site where De Quille developed the strategies he would perfect in the successful hoaxes, and it is also the longest and most elaborate of his hoaxes.

I have found evidence of at least four more "serious" hoaxes De Quille wrote, and one of them succeeded in attracting national scientific attention. The underground lake hoax mentioned by Goodwin appears to have been locally successful, but it is hard to track down without further identification. Wells Drury claimed success for De Quille's "quaint" about a windmill that stayed in perpetual motion by using loose sand it hauled up in windy periods as ballast to drive the mill in windless periods (213); the quaint was supposed endorsed by "an engineering journal," in which a Boston engineer figured out "the exact horsepower" the windmill would generate, but no corroborating evidence for this anecdote is extant. "An Astounding Discovery.—Extraordinary Advance in Science—A Savant Makes an Egg and Hatches Therefrom a Live Bird" appeared in the 19 February 1876 Enterprise and claimed to be a reprint from the Church Union. This "hoax," however, may have been read as humor rather than as science news due to its outlandish subject (thus violating readers' Plausibility expectations) and a few off-key phrasings in the piece like "his darling scheme" and "The Professor was almost wild with delight" (violations of Popsci. expectations).

De Quille's "Mountain Alligator" or "Highland Alligator" hoax, however, prompted a letter from no less a personage than famed evolutionary paleontologist Edward Drinker Cope. Cope addressed the letter to "Wm. Blackheath" care of the Enterprise.

Sir—

I see a notice of your "Mountain Alligator" in the Virginia City Enterprise. I do not know how true the statements are, & I write to inquire about the matter. Can you tell me if the length is 7 feet long as stated? Also will you describe the color of the beast?

As a naturalist who has devoted more attention to the reptiles than any other man in this country, I am very curious to give a scientific account of your beast in the Magazine above named [*The American Naturalist*]. Can you find the skeleton & the skull & feet you took from the skin? I can determine exactly what it is if you will send them to me. You may have thrown them away, but I will value them—even if dirty and broken, as I can clean & study them. Of course the skull is most important. Can you send it? I would much like also to see the skin.

Will you give me an account of the locality from whence the specimen was obtained? I will be in Arizona in October….

Yours very truly,

E.D. Cope

De Quille annotated the envelope, beneath the address, "A Professor who was sold on the 'Highland Alligator.'" The letter is dated 18 September, either 1880 or 1888. A search of the Territorial Enterprise for both of those years up to that date revealed no story about a "Mountain Alligator" or "Highland Alligator," but it could very well be that Cope was looking at a paper a year or two older.

Cope may have shared many of the values of Twain's miner readers discussed in Chapter Three. Like the local miner population, Cope could not be too picky about which stories he believed if he wanted to beat Othniel Marsh out as the premier naturalist of the late nineteenth century. Cope does mitigate his request with "I do not know if the statements are true," but his eagerness to get his hands on the fossil in the second paragraph is almost cloying. An additional dynamic indexed by this letter and the letter from Spencer Baird's secretary bears importantly on our analysis of De Quille's hoaxing. De Quille inscribes on both of these letters the mark of his triumph over the East Coast "professors." He has "sold" the university men on eyeless fish and mountain alligators simply because the professors are outsiders and are therefore not privy to the local, contextual information that would expose the hoaxes.

The use of the word "sold" is not accidental. Nevada's silver resources were being bought by the government, first to finance the Civil War, and then to finance America's burgeoning foreign trade. This business was being transacted increasingly to the detriment of the local miners and prospectors. De Quille seems to have had a strong sense that his doughty local prospectors were constantly in danger of having their hard work bought out from under them cheaply by Eastern commercial interests. This national "yard sale" included the begging, buying, or stealing of Western natural wonders like fossils and geodes by university collectors. Jealous and proud of the progress Nevada had made as a State and as a monument to the pioneering spirit, De Quille got a great deal of satisfaction out of Baird and Cope "buying" a Nevada hoax. That "sale" leveled

the playing field a little for the pioneers against Eastern money and political power. De Quille once wrote to his sister that he believed Easterners were afraid of the Westerner's "off hand and irreverent way of mentioning men of note and standing" (Wright Dives 22). De Quille believed he and other Nevadans possessed, by constructing their destinies on the say-so of no one but themselves, a weapon that was capable of neutralizing the old social institutions and hierarchies that they had moved West to escape but which had followed them anyway. These conclusions based on Cope's and Baird's letters will be addressed more fully in the final section of this chapter.

4. SUMMARY OF READING EXPECTATIONS BASED ON DE QUILLE'S HOAXES

Dan De Quille utilized at least four new strategies in his hoaxes: the "Emperor's New Clothes" appeal, *refutatio*, witness, and exploiting the codependence of belief/doubt through sequels. Each of these strategies is fundamentally linked to reader expectations. The "Emperor's New Clothes" strategy can be connected with Novelty, as it induces a strong desire to "keep up with the Joneses" and appear on top of new developments in science and technology. But it more properly belongs to a level of reader desires that is beyond expectations about ethnoscience and science news, the expectations to which we have restricted this study. "Emperor's New Clothes" appeals tap into a type of social competition fostered by Jacksonian rhetoric about the self-made common American—the struggle to appear independently knowledgeable in all circumstances and thus self-sufficient.

Refutatio is De Quille's strategy for increasing the effectiveness of his argument by constructing a model of his readers' interpretations on-line and adjusting his arguments to play to their highest-ranked expectations. His shifting of his arguments toward Plausibility show us that he believed his readers to rank Plausibility very highly. The skeptical demands by New York and English editors for further proof of De Quille's claims, along with the requests by the Smithsonian and Cope for verification, support this plausibility-focused model of science reading as more general than just De Quille's personal conception. Perhaps many science newsreaders, especially Eastern and European readers, were entering a phase where Novelty and Sensation were being either valued negatively or simply devalued because of bad experiences with trusting medicine-show and Barnumesque scientific claims. On the other hand, in the case of the "Eyeless Fish" causing near-panic among the Nevada and California papers over the prospect of the mines running out, we see the residue of the reading filters of Western miners who still rank Novelty higher than Plausibility because their unstable futures depend on reacting quickly to new information.

De Quille's appeal to local and textual witness necessitates a new expectation, Witness. We saw the seeds of this practice in Twain's hoaxes, where he followed up the "Petrified Man" hoax with a notice that hundreds of people had been to see it and ended his "Empire City Massacre" with the murderer dropping dead in front of a saloon full of locals. Over and above the *ethos* of foreign experts (Foreign) that we saw as a regular feature of the New York hoaxes of the 1830s and 1840s, Witness requires local testimony, which was the surest

way to verify truth in 1865 Nevada where there were very few papers, courts, law-enforcers, and other official social arbiters of truth. This new expectation can be stated thusly:

Witness: If trustworthy locals reportedly witnessed a phenomenon, it is probably real.

De Quille's performance of the codependence of belief and doubt through his sequels is the area in which we have the most evidence for development and evolution in his hoaxing. Its basic rhetorical success seems to hinge on De Quille's ability to project himself over time as a skeptical authority weighing his options just like the reader. This performance increased the appearance of cognitive similarity between the reader and writer, in Kaufer and Carley's terminology, and thus increased the chances that the reader would be sympathetic to the hoaxer's claims. However, it also made a fundamental, indirect argument for De Quille's authority, namely, "Whichever way you make up your mind, you're still counting on me for your information."

After a consideration of Twain's hoaxing, we determined the following filter of expectations for a Western readership predominantly composed of miners and prospectors:

Authority >> {Novelty, Sensation} >> {(Medium), Plausibility, Popsci., Internal Con.}

{Sensation, News, Progression} >> Comprehension

The top tier, with Authority first, reflected the trumping power of the dual journalistic reputations of "Sam Clemens" and "Mark Twain." For unsigned articles, however, the urgent need to exploit new information (as well as a thirst for sensation on the sparsely-populated frontier) tended to win the day over the

more quotidian evidence provided by the text in the form of plausibility, conformity to generic conventions, and internal logical consistency. Medium was left in parenthesis because for many readers, it may have been deactivated by the ambiguous reputation of the Territorial Enterprise. The bottom tier reflected both Twain's and the contemporary editors' observations that people tended to skim science news, using the familiar structure of the news article as a hypertextual guide for skipping around; this skimming was performed to the detriment of comprehension of details, especially at the end of articles.

After considering De Quille's hoaxing, I have made the following adjustments to the filter:

1. Authority>>{(Medium), Plausibility, Popsci., Internal Con., Witness}>>
{Novelty,Sensation}

2. {Sensation, News, Progression} >> Comprehension

Authority is left in highest position due to evidence from contemporary readers that De Quille had a stand-up reputation as a journalist. De Quille himself seemed to depend on this reputation as evidenced by his practice of interleaving fact and fiction in his articles with no overt distinction between the two. The switching of the text-internal expectations with Novelty and Sensation indicates De Quille's belief that his readers actually read and paid attention to the facts and the language of his articles. This observation is corroborated by De Quille's remonstrating with Twain to provide clearer evidence of the "joke" in "Empire City Massacre," by De Quille's practice of monitoring his readers' potential interpretations online and adjusting his evidence to satisfy their demands for

plausibility, and by the requests for further evidence by Eastern and English reporters and scientists. Witness reflects the eventual displacement of Foreign experts in De Quille's hoaxing by "trustworthy" local characters who vicariously perform the functions of witness and validation for the readers; it also indicates the strategy De Quille developed in his later hoaxing of forging testimonies and embedding them as support in his hoaxes. Overall, the changes to the filter reflect De Quille's projection of his self-made, independent pioneer readers and his personal experience as one of them.

5. Discussion: De Quille's hoaxes build and defend his ideal West

The questions remaining about De Quille's hoaxing now are the same that we have answered for each hoaxer: Why did De Quille choose hoaxes to address his readers about science and technology? What message was he trying to get across about those topics? What relationship was he attempting to construct with his readers through the hoaxes? The short answer is that De Quille's hoaxing was overall a constructive activity. Instead of having a particular axe to grind with the way science or technology were being implemented in the West (after all, he was a miner and loved science), he instead concentrated on using scientific rhetoric to build the West that he wanted to live in and that he wanted to project to the East. He playfully exploited the authority he had earned with his readers through legitimate mining reporting to construct for them and for outsiders a West full of wonders. If, in the process, he caught some important Eastern scientists and businessmen in his net, all the better for his project of championing the pioneer as a scrappy folk hero triumphing over the silk-vested Eastern fat cat.

This portrait of De Quille's hoaxing revises two previous conceptions of it. C. Grant Loomis's study of De Quille's hoaxes, the most extensive, classifies them as "scientific tall tales" since they are all on topics of science and technology. However, this purely topical approach unfortunately lumps together two different registers of De Quille's scientific journalism as discussed at the opening of this chapter: his humorous "tall tales," and his "quaints" or "sells" (his hoaxes). A tall tale like "The Boss Rain-Maker" (ctn. 1, fldr. 8), about a miner who makes rain by shooting the clouds with buck-shot, is written in dialect and makes no pretense to be anything other than a humorous story on a quasi-scientific topic. The "Silver Man," hoax, on the other hand, is written as a high-register science news article. De Quille was clearly engaging his readers in two different games with these two different rhetorics. Lawrence Berkove recognizes this rhetorical difference when he separates out from De Quille's humorous fiction the special category of his "quaints," in which his purpose was "always the same: to gull unwary readers by his matter-of-fact style and copious use of speciously corroborative detail into believing them true" (Dives 21).

The distinction is a crucial one to make, for if we obscure it we rob ourselves of an explanation for the resilience of De Quille's reputation as a trustworthy scientific writer in spite of his copious hoaxing. Hoaxing, as discussed with respect to the Authority expectations in Chapter Two, creates a condition of expert notoriety for the hoaxer; in many instances, this effect provides powerful motivation to hoaxers like Poe and Twain who wish to create an *ethos* of counter-cultural authority. But Poe and Twain's journalism was more

amenable to contamination by the waggish reputations they developed through hoaxing. Poe wrote fiction and poetry and essays on those same topics. Mark Twain, too, apart from a short stint as a congressional reporter at the start of his career (which he carefully marked with his given name in order to quarantine it from his developing reputation as a wag) wrote fiction and satire. They were yarn-spinners. It was easier for their readers to reconcile their hoaxing with their overall literary endeavors. De Quille, on the other hand, evinced a rather sharp divide in his journalism between his technical writing on the one hand and his tall tales and hoaxes on the other. The contemporary commentary shows De Quille's readers cognizant of this Great Divide. Wells Drury, for example, writes the following about the relation of De Quille's hoaxing to his technical writing:

> When the newspapers of the coast took Dan to task for his trifling, Dan only laughed and resolved never to do it again, but the next time that items were scarce he was tempted and fell from grace….These diversions, of course, were only occasional and desultory. In his regular work Dan was a model of method and accuracy. This made his hoaxes all the more dangerous. (213-214)

Because De Quille had two distinct journalistic modes, his readers were able to bracket off his technical writing and reputation from infection by the notoriety that hoaxing usually brings. Interestingly, however, that interpretive barrier was permeable from the technical side, as Drury notes above: De Quille's reputation as a scientific expert continued to lend at least initial credibility to his hoaxes, written as they were to sound like serious science articles. Local readers

had access to enough ancillary evidence to eventually sort out De Quille's "quaints" from his technical pieces. East Coast readers likely did not. With both readerships, however, De Quille's formidable technical expertise appears to have insulated his journalistic *ethos* from notoriety.

De Quille scholars have made another, more serious, error in apprasing his hoaxing. Much like the critics who claimed Twain had no social project, Lawrence Berkove argues that De Quille's hoaxes had "no ulterior purpose beyond entertainment" (20). As we have seen throughout this study, hoaxing is serious business, altering the very fabric of what readers consider real. The editors of the San Francisco Stock Report cut to the core of the issue when they criticized the "Eyeless Fish" for starting a dangerous rumor about the future of silver in the West: "A joke is a joke, but such a joke as this becomes serious in its consequences in proportion as it is successful." A hoax becomes epistemologically and politically serious when many people start believing it. That De Quille was serious about people believing his hoaxes is evident in the copious sequels he wrote to the "Traveling Stones" and "Solar Armor" hoaxes in particular. He persisted in defending his hoaxes for as long as thirty years.

Why would De Quille work so tirelessly to secure belief in his hoaxes? Most of the locals that read his paper could verify within hours or days that De Quille's "quaints" were nonsense, just by asking the people referenced in them. Some answers to this conundrum become clearer when we consider De Quille's second readership, his East Coast readers, along with his central social and political passions: state-building and the free silver movement.

5.1 State-building and the prospector as folk hero

Lawrence Berkove justly describes De Quille as a major Western writer who "was shaped by the West even as he helped create it" (39). De Quille was invested in Nevada. After all, he chose to spend nearly 40 years of his life in the territory/state when he had a wife and three children back East in Iowa. His papers contain envelopes in which he collected clippings pertaining to "Nevada matters" (ctn. 1, fldr. 39), and he followed and wrote on the politics of statehood. He owned a complete copy of the laws passed by the Nevada legislature during the 1863-1864 session, right before Nevada achieved statehood (ctn. 2).

De Quille's hoaxes are not about events in Europe or on the moon, as Poe's were. They are all about Nevada locations, phenomena, and people. De Quille was a correspondent for Eastern papers and knew they clipped his stories. He knew that hoaxes created new realities for readers, both Western and Eastern. The hoaxes, along with De Quille's other stories, served to create a larger-than-life legend of Nevada as a scientific wonderland and Nevadans as stout-hearted individualists who did not shy away from the most bizarre of discoveries. As De Quille wrote of the men who supposedly discovered the "Silver Man," "Had the finders been any other than California or Washoe miners, there would have been a jolly stampede and some frantic climbing" to retreat from the terrifying sight (3). De Quille did not insert people in his hoaxes, as Twain did, to mock them. The prospectors, miners, inventors, and doctors who staff De Quille's hoaxes are America's new folk heroes—ingenious, fearless, and occasionally tragic, as in the case of Jonathan Newhouse and his solar armor.

One might justly argue that the self-revealing character of De Quille's hoaxes would damage the grand reputation he was trying to construct for the West and Westerners with an Eastern readerhip. In fact, the track record of revelation for De Quille's hoaxes is extremely interesting, as he only revealed one in print, the "Traveling Stones" hoax. His other hoaxes, much like Poe's and Twain's, contained clues and witnesses that locals could use to debunk the stories. The explicit revelation of the "Traveling Stones," as we saw in the analysis of that hoax, was not so much a revelation as a dramatic prelude to De Quille's final installment in the hoax, his own conversion as a believer in the existence of the stones. Cleverly, he claims to have believed from the beginning that they were always out there and that his story merely goaded his readers on to find them. Revelation, therefore, was actually a constructive strategy for De Quille, allowing him to capitalize on the codependence of belief/doubt to assert his authority over the reader who could not independently test his "quaints." This reader was the Eastern reader, the main target of De Quille's hoaxes.

5.2 Free silver and the defense of the West

Nevada became a state in 1864, and De Quille lived there for nearly thirty years after that. Lawrence Berkove writes of his later years, "He had outlived the bonanza times but was not content to silently carry to the grave his love of the pioneer and prospector ethic" (35). For this reason, Berkove claims, De Quille wrote Dives and Lazarus, his longest fiction work, which remained unpublished until nearly a hundred years after his death. Through the allegory of a poor prospector who goes to heaven and a rich gold-trader who goes to hell, the book

contains some heavy propaganda on an issue that engaged De Quille's passions—the free silver movement. When viewed through the lens of this political issue, De Quille's hoaxes appear as a means to symbolically redress the debts that he felt Eastern governmental and commercial interests owed the Nevada prospector.

The free silver movement was a reaction to Eastern commercial appropriations of Western resources. Nevada was made a territory in 1861 by Lincoln so that its burgeoning silver yields would serve the Union and not the Confederacy during the Civil War. The silver financed a great deal of the rest of that war as well as foreign trade afterword, as footnoted above with respect to the "trade dollar" debate in the "Eyeless Fish" hoax. However, in spite of the boon the vast silver resources of Nevada had provided the nation, the U.S. stuck to the gold standard after the Civil War, a policy that increasingly hurt Nevada during the series of depressions that wracked the country from the 1870s until World War I. Silver languished at various unpredictable fractions of the price of gold, making paying for debts and basic necessities with silver dollars nearly impossible. Proponents of "free silver" wanted the U.S. mint to allow the stamping of as many silver dollars as there was free silver in Nevada, at a constant rate of 16 silver dollars to one gold dollar. This would have helped miners and small businessmen in the West recover somewhat from the depression. But the U.S. government refused, and miners believed it was because big businessmen and bankers, who would suffer if the debts they held were easier to pay back, had undue influence with the government (Wright Dives 32-33).

In addition to the allegory of Dives and Lazarus, De Quille wrote vehemently in favor of free silver. In his articles he polarized everyone into "the millionaires versus the masses, plutocracy versus democracy, remorseless Shylocks versus the 'race of hardy frontiersmen,' evil versus good'" (Wright Dives 33). It was in this phase of his life that De Quille, who had been multi-culturally educated and tolerant in his fiction and non-fiction to this point, suddenly wrote bitterly against Jews and the Chinese, whom he believed were conspiring with the gold-standard supporters against the miners.

This passionate defense of the miner against the East Coast political and business interests dovetails with De Quille's hoaxing practices. As mentioned with respect to the "Eyeless Fish" and "Mountain Alligator" hoaxes above, De Quille enjoyed "selling" big East Coast professors on stories that his uneducated miner friends at the saloon would never take seriously for more than a day or two. The professors were outsiders, Nevadans were insiders, and the hoaxes dramatized that divide. The same dynamic held in the "Traveling Stones" revelation of 1879. De Quille claimed he only revealed the hoax because he was tired of being pestered by requests for the stones from P.T. Barnum, German scientists, and Eastern businessmen. Perhaps his motivation was rather a symbolic victory over these prestigious figures via public humiliation. He rounds out his revelation by relating the annoyance of being hustled by an Eastern businessman to produce a "carload" of the stones, after which he snipes, "If this candid confession shall carry a pang to the heart of any true believer we shall be

glad of it, as the true believers have panged it to us, right and left, quite long enough" (Dwyer 22).

5.3 Conclusion

De Quille's hoaxing is not an indirect criticism of the role of science in American life, as were Twain's and Poe's. De Quille was a lay scientist and wrote as enthusiastically about the progress of science and technology in the West as anyone. The target of his hoaxes was the East Coast commercial appropriation of what Western miners and pioneers broke their backs for—a problem that he also worked out in detail in his free silver journalism and in Dives and Lazarus. The hoaxes were De Quille's private, and public, vendetta against the powerful Eastern interests victimizing De Quille's friends and neighbors.

In the end the legacy of De Quille's hoaxing moves beyond the valiant but losing fight he waged against the East and the gold standard. His hoaxing practices utilize the foundational strategies developed by Poe and adapt them to a popular science rhetoric that demonstrated through its matter-of-fact language the control that American science had extended over nature in the intervening thirty years. In addition, De Quille's hoaxes clearly demonstrate their inheritance of Twain's conception of the hoax as local political activism. But De Quille is also an innovator. He develops rhetorical strategies of hoaxing—like "Emperor's New Clothes" appeals, forged testimonies, and sequels—that specifically exploit the power of print to build reality over time. His legacy is the idea of the West as a perpetual frontier where the possible and impossible regularly change places through the translation of scientific rhetoric, as a liminal realm that divulges its

mysteries only to those who go there and write about it. With his hoaxes De Quille—just as significantly as other, more canonical Western writers like Twain and Bret Harte—conditioned his readers to believe that the West was a region of American experience where words, in fact, made the world.

Chapter Five: The Mechanics of Hoaxing

In this project I have treated scientific media hoaxes as historical rhetorical events—exchanges on issues of science and/or technology between writers and their audience(s) that play out over time through news media. This definition was developed as a reaction to certain problems with traditional generic definitions of hoaxes, namely their inability to account for hoaxes' stubborn tendency to expand the boundaries of their textuality. Functions like revelation, author intentionality, reader reception, and medium-dependence must be considered when analyzing the success of a well-crafted scientific media hoax. When we view the hoax as not a text but an event, a public exchange during which Americans decide what they believe to hold true in their world, the hoax's expansive textuality is transformed from a definitional obstacle into a key instrument for shaping a portrait of science newsreading.

This redefinition of a hoax has required a methodology of rhetorical analysis that can cope with the entire communicative loop of the hoax—author, medium, audience message—or the "symbolic action" the hoax enacts in its community, in the alternate terminology of Karlyn Kohrs Campbell (49). The expectation-based method chosen for this analysis meets these criteria because not

only does it model the interaction/competition of readers' expectations during their decisions about the truth of a hoax, but it also models the guesses of the hoax writer as he strove to camouflage his project under the features readers would expect of a "real" science news item.[25]

1. CONSEQUENCES OF A RHETORICAL REDEFINITION OF HOAXING

Before I move on to my conclusions about hoaxing in nineteenth-century America, we should examine two key consequences of approaching hoaxing with a method that combines rhetorical hermeneutics and pragmatic linguistics: first, authorial intention cannot be ignored, as it is crucial feature of the hoax as a social project; and, second, the reception of hoaxes at different times and places (*kairoi*) in nineteenth-century America is reconstructed as evolving filters of common reader expectations.

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[25] Why didn't women write hoaxes? A purely statistical answer is that there were simply not many women reporters for popular media in the mid-1800s (if any) and no women popular science writers (to my knowledge), so women simply lacked the opportunity for large-scale scientific media hoaxing. However, this is not a satisfactory explanation. A naïve hypothesis might hold that hoaxing, with its agonistic emphases on criticism and dominance, was gendered male rather than female at this time, though this generalization begs for close scrutiny and corroborating research. As a potential counterpoint to this argument, women did read and publicly respond to hoaxes (cf. Elizabeth B. Browning's letter to Poe about "M. Valdemar" and Harriet Martineau's commentary on Locke's "Moon Hoax"). A more suggestive reading of the gendering of hoaxes keys off Blair and Hill's classification of hoaxing as "subversive." In Sensational Designs: The Cultural Work of American Fiction, Jane Tompkins has made an excellent argument that women writers pioneered their own highly effective "subversive" mode of social criticism and subversive cultural work that fell within the bounds of respectable femininity in antebellum America—the sentimental novel. Chapter Five of Sensational Designs frames the issues of gender and power associated with this literature through the lens of Harriet Beecher Stowe's Uncle Tom's Cabin.

1.1 The social projects and intentions of the hoaxers

In spite of choosing a common rhetorical mode through which to criticize the role of science in America, each author had a slightly different social project in mind with his hoaxing. Poe's hoaxing was groundbreaking. He and Richard Adams Locke innovated the genre just as Poe innovated the American genres of the short story, detective fiction, and science fiction. Poe's hoaxes took advantage of current "fads" in popular technology and science, especially those of European provenance. He used these sexy topics as vehicles to launch an indirect assault on a reading culture that rewarded Baconian scientists for their technological productions but refused to support artists in their endeavors. He considered the revelation of his hoaxes as a social triumph for artists, reasserting their authority not only over the language of science but also over the construction of public truth. Simultaneously, Poe exploited the double audience that hoaxes construct to materialize for himself a community of like-minded readers who shared his preference for imaginative scientific epistemologies like the one outlined in Eureka.

Twain's hoaxing inherited many characteristics of Poe's practices, especially the sensational topic (petrifaction) and the undercutting of the authority of paleontologists. While Poe's hoaxes played on the exotic marginality of Europe or pseudoscientific phenomena, Twain's hoaxes were rooted in the West and dealt with local Western issues. Both hoaxers thus exploited frontiers, lines where readers' knowledge became fuzzy or unstable, but they did so for different purposes. Poe had a personal scientific agenda to push. Twain was disturbed first

by scientists' cooption of the right to write the West for Americans and later by the bending of technological progress in America toward imperialistic ends. His hoaxes produced laughter that was an affirmation of self-determination in the face of many American institutions—science, organized religion, Victorian morality, the military—that were vying for authority over the individual. However, Twain's hoaxes also served to re-establish his authority over his readers as the only trustworthy author who was willing to unmask others' social hoaxes and reveal the real West, the real America.

De Quille's hoaxing was a celebration of the ability of the scientific imagination to create American reality. He continued Twain's local practices, but his personal rhetoric of hoaxing was more complex than either Twain's or Poe's. Manifesting a finely-tuned awareness of the needs and expectations of his readers, De Quille actually adjusted his argumentation within his hoax to anticipate his readers' interpretations using a strategy of *refutatio*, and he employed sophisticated rhetorical manipulations of his readers' psychological needs for witness and for insider status in order to secure belief in his hoaxes. His target was also slightly more focused than Twain's or Poe's. Instead of railing against science or industry, De Quille's hoaxes targeted Eastern commercial interests, including the government and universities, which were seeking to profit from the risk and labor of Western pioneers. De Quille exploited the insider/outsider dynamic of hoaxing inherited from the tall tale in order to defend his ideal West from Eastern appropriation.

In addition to these social projects, two of our authors had personal axes to grind with their hoaxes. Poe used "Von Kempelen" to mock George Eveleth, an irritating groupie; Twain famously aimed "Petrified Man" at Judge Sewall.[26] Since the hoaxes make public these very personal goals, it is impossible to avoid the issue of author intentionality in hoaxing, no matter how vexed a question it may be.

The easiest formulation of the problem is this: If an author intends a hoax, but no one believes it, is it a hoax? The answer is almost certainly no, and the term "failed hoax" is probably the most felicitous for this situation. The more troubling formulation of the author-intentionality problem in hoaxing remains as follows: If an author did not intend his/her story to be taken for a serious witness of a real scientific event, but it was received as such by a readership (not just one or two people), was it a hoax? My gut reaction, which I suspect is shared by many, is "no." The folk use of "hoax" bears negative connotations that felicitate its pairing with verbs like "perpetrate" and "foist," which require a villain as an agent. However, at least two complications to this claim have emerged in the course of this study.

One of these complications was the reception of Poe's "M. Valdemar." There is no extant evidence that Poe intended the story to be taken literally; however, once it became clear to him that he had secured the belief of readers from Europe and America, he began referring to the story as a "hoax" to pump up

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[26] De Quille obviously derived satisfaction from fooling scientists Baird and Cope, but his personal papers leave us no evidence of his use of the hoax to satisfy a personal vendetta

its celebrity. This seems to indicate that author intentionality is not simply a problem for the framing of the hoax but also gets interleaved with reader responses. Thus, "M. Valdemar" is a hoax because Poe chose to own it as such once readers started believing it.

A second author intention problem arose with Twain's hoaxing, where he claimed that "Petrified Man" and "Empire City Massacre" were not hoaxes but satires, and he spent a great deal of time justifying this claim by pointing to clues he had planted in the stories, which his readers had missed. While Twain's claims are not consonant with his actions, which were calculated to perpetuate and repeat these "misunderstandings," this scenario raises the crucial role of reader reception in the hoaxing event. If many readers believe something to be true that is later revealed to be false, irrespective of author intentions, the word "hoax" can still be applied. For example, "War of the Worlds" is almost always referred to as a hoax in spite of the fact that the original broadcast contained announcements that it was fiction; the massive public panic that ensued has ensured its historical status as a hoax.

What seems crucial is that in a hoaxing event, the fooled readers or listeners hold someone perceived as the author accountable for their embarrassment or discomfort. In the case of "War of the Worlds," angry responses from listeners forced Orson Welles to issue a public apology for the "misunderstanding," even though his broadcast had included disclaimers. Therefore, this is the answer to the intentionality problem that I offer for now: If an audience publicly constructs itself as deliberately deceived by an author or

agency through a news medium, the event counts for historical purposes as a hoax, irrespective of the stated intentions of the author. This definition rules out a case where one or two readers with active imaginations or serious psychoses believe a piece of science fiction is a news report. This definition also correctly assigns cases like John Symmes's "Symzonia," in which the author genuinely believed in and lobbied for the report he issued of subterranean passages leading to the earth's core (Collins 63). This was not a hoax because even if a readership believed the story, so did its author. There was no "malice and aforethought," no discrepancy between the knowledge states of the author and readership that could be publicly demonstrated and decried.

This definition of author intentionality in hoaxing actually makes a striking argument for the function of reader response in constituting authorial agency—and in levying the historical judgment of "hoax" itself against these rhetorical exchanges. Reader judgments formed the core of this project. From readers' reactions to the hoaxes, I reconstructed expectations associated with science and science news that repeatedly served as "sticking points" in the debates over the truth of the hoaxes. These expectations were organized according to their relative power in the interpretive process into sets or "filters" of expectations that readerships held in common. By comparing these filters across time and between readerships, we can get some perspective on how the reading of science news changed in America from 1835 to 1880.

1.2 Reception figured as filters of reading expectations

The method of this project introduces a cognitively-based formalism into the study of historical American literature. To justify the imposition of the OT model on the hoaxes and their reception, two key questions must be answered: first, is the model necessary? Second, are there precedents demonstrating the utility of decision-making models for describing rhetorical and literary discourses?

Chapter One included an extensive justification of the necessity of a constraint-satisfaction model like Optimality Theory for describing readers' decisions about the truth-value of the hoaxes. To briefly recap that argument, contemporary commentary on the "Moon Hoax" by Edgar Allan Poe singled out readers' pre-existing expectations about science and science news as the driving force behind the hoax's general acceptability among New Yorkers. In addition to this evidence, other contemporary commentators reiterated Poe's attribution of the effect of the hoax to reader assumptions about authority, plausibility, novelty, "verisimilitude," etc. Accordingly, I needed to find a way to talk about these reader expectations and to explain the competitions between them that frequently surfaced as readers debated the truth of Locke's hoax and the other hoaxes in my project. The most germane models were Ellen Schauber and Ellen Spolsky's preference rules for reading genres, and Optimality Theory, a framework for modeling decisions made in the face of competing values or constraints. The two models are by no means mutually exclusive, but I chose OT because of its greater precision in modeling multiple levels of different constraints and because of its

visual inspectability. The data in my project drove my choice of method, not the other way around.

Beyond its necessity in this particular instance, is a cognitive model like OT useful for examining other rhetorical and literary problems? Have similar models been applied successfully in these arenas? The final section of this chapter will list some suggestions for productive applications of an OT-type model to other literary questions. But there are already good historical precedents for the application of cognitive models to problems of reading and composing, and my methodology proves to be a natural extension of these successful approaches.

Reading or writing a hoax involves processing information from varied sources—including the cultural environment, personal goals, and reader feedback—and making judgments and decisions based on that information. I have more than once compared hoaxing to a game, calling it an "interpretive game," describing "winning" and "losing" interpretations, and attributing various rhetorical "moves" and "strategies" to the hoaxes' designers. Cognitive models focusing on human adaptation to the environment, like Vera and Simon's Situated Action (SA) and J.R. Anderson's Adaptive Character of Thought (ACT-R) theory, excel in modeling game-playing. These theories have successfully taught computers how to solve puzzles like the Tower of Hanoi and Building Sticks. They demonstrate how human psychology might have used complex information from the environment along with feedback from competitors to develop strategic faculties. Optimality Theory is closely related to these types of cognitive models

and to Game Theory. Because it can handle complex information input, OT can model how hoax readers make judgments about the world when what they read competes with what they know. It also explains how hoax writers make strategic decisions based on their mental models of what their readers expect.

OT is also similar to cognitive models that have yielded valuable insights into rhetorical processes. Among composition theorists, Flower and Hayes (1981) were the first to propose a cognitive model of writing. They recorded writers talking to themselves while they composed and found that the writers oscillated between planning what they were going to write, jotting it down, revising, and comparing the revisions to original plans. Their behavior did not match the traditional stage model of composition that claimed that writers first planned, then wrote, then evaluated in a linear fashion without recursion to earlier stages. So, Flower and Hayes developed a model of writing with three modules—environment, memory, and process—that could be hierarchically and recursively embedded within each other, thus mirroring more accurately writers' observable behavior.

David Kaufer and Brian Butler developed a very similar model to help explain the Lincoln-Douglas debates. Since transcripts of the debates remain, Kaufer and Butler were able to track strategic changes in both candidates' speeches as they adapted to each other's arguments and to the responses of audiences. Kaufer and Butler's model is also modular, including Plans, Tactics, Events, Presentation, and Strategy. Each of the modules is responsible for a different information source, and the modules monitor each other for changes that

can be incorporated in future discourses to better fit them to the *kairos* at hand—in this particular case, the campaign trail of 1858. From this analysis, Kaufer and Butler were able to demonstrate Lincoln's superiority in the debates as a function of his superior ability to neutralize Douglas's attacks and to adapt his platform to audience values.

Optimality Theory extends these analyses in a very specific way by structuring the means by which writers represent to themselves their audiences' values. If these models were to be applied to the problem of how the hoaxers composed the hoaxes, audience expectations about science news and ethnoscience would form the engine of Flower and Hayes's Memory module and of Kaufer and Butler's Tactics and Strategy modules—the parts of the writing process responsible for monitoring audience feedback.

My use of OT does not equate to an argument that reading hoaxes is biologically-determined behavior or that all readers make the same types of choices about hoaxes. The model is descriptive, not prescriptive. It is flexible enough, as I have demonstrated, to account for many different individual approaches to the same hoaxes, and for readings of different hoaxes over time. OT simply enables thick description of the interpretive process, allowing for the impact of readers' socio-economic and ethnoscientific acculturation, and provides as an output an argument about common reading priorities that can then be compared against the rhetorical aims of the hoaxers.

The result of the application of this method is an evolving portrait of reader priorities spanning the careers of these three authors. Overall, four general

trends are visible upon inspection of Table 21, which compares the filters of expectations gleaned from the contemporary reactions to each of the three author's hoaxes:

Table 21: Comparison of filters of reading expectations from the project

Expectations of Poe's New York newsreaders from 1835-1849
{Medium, Authority}>>{Novelty, Sensation, Plausibility}>> {Popsci., Foreign, Internal Coh.}
Expectations of Twain's Western newsreaders in 1862
1. Authority >>{Novelty, Sensation}>>{(Medium), Plausibility, Popsci., Int. Coh.} 2. {Sensation, News, Progression}>> Comprehension
Expectations of De Quille's Westerns newsreaders from 1865-1880
1. Authority >>{(Medium), Plausibility, Popsci., Internal Coh., Witness}>> {Novelty, Sensation} 2. {Sensation, News, Progression}>> Comprehension

A few reminders about the structure of the filters are in order. The filters are linear lists of reader expectations in order, right to left, of increasing strength in determining decisions about the truth of the hoaxes. No single reader's interpretation of a hoax is likely to use all of the expectations in the filter, as readers tend to focus on two or three competing expectations, at the most. The filter is an abstraction incorporating the ranking information from many different readers' decisions. The crucial levels of rank in the filter are indicated by ">>"; if there is more than one expectation in a level, they are bracketed together in order

to indicate their equality of strength and lack of competition with each other in the interpretive process.

A few general trends are visible from comparing the filters. The reputation of the author (Authority), whether positive or negative, remained a powerful determiner of reliability. The reputation of the medium (Medium) became a weaker constraint in decisions about truth in Western journalism, which was very new and still involved with folk practices of tall-tale telling and practical joking. The placing of Medium in parenthesis indicates its optionality. Some readers, like rival editors, used the negative reputation of the Enterprise as an important factor in their decisions about potential hoax stories. Other readers, accustomed to the unreliability of the Enterprise, did not use Medium in their decisions at all; they just used their own "common sense" and the textual, factual expectations like Plausibility, Popsci., and Internal Coherence. Finally, information junkies like miners and collectors like Cope and Baird had to weigh their desire for a scoop against the fishy reputation of the paper, so Medium would still be active for them at a mid-strength level.

The reactions to De Quille's hoaxes in the 1870s, particularly those from the reprinting papers, revealed that novelty and sensation (Novelty and Sensation) were not considered as reliable indicators of scientific truth as they were a few decades earlier. Eastern readers, especially, tended to evince suspicion without further proofs of plausibility. The history of Plausibility and other expectations concerned with factuality is particularly interesting. Poe's readers, especially in the case of "Von Kempelen" seemed to use plausibility as a benchmark that Poe's

hoax on alchemy failed to meet. Twain and his rival editors, however, seemed to feel that their miner readers' hunger for new information caused them to downgrade Plausibility and other expectations of factuality. Dan De Quille, perhaps as a side-effect of his readers' devaluation of Novelty and Sensation, restored the higher ranking of factuality and plausibility in his hoaxes. Their successful reprinting history seems to corroborate this judgment he made about his readers' expectations. A final observation is that for the Western hoaxes, the presence of eyewitnesses (Witness) in the sparsely-populated territories was important for readers to feel they had been provided with a vicarious experience of a real scientific phenomenon.

A few other trends are not immediately apparent but still important. The popular science article (Popsci.) changed over time to conform more to the format of a regular news article, front-loading the "who, what, when, where, why" and foregoing the "mystery" opening. This development goes hand-in-hand with the suspicion of sensation appearing in the reader reactions to the postbellum hoaxes. The popular science article also began to place background information at the end of the story instead of at the beginning, thus favoring a journalistic rather than a strictly narrative structure. The disappearance of Foreign from the expectations of the later Western newsreaders reflects Twain's and De Quille's adjustment in their hoaxing to a local epistemology based on lay eyewitness.

I introduced a second tier of expectations, reflecting newsreading psychology, beginning with Twain's hoaxing because his commentary and the editorial reactions to his hoaxes reference it as affecting the interpretive process of

hoax readers. This delayed introduction does not imply that Poe's readers never skimmed to get to the good parts. However, the 1860s was the era in which the news article was settling into a more standardized format, enabling readers to make use of skimming heuristics. Finally, the Medium is in parenthesis in both Twain's and De Quille's contexts of reading, reflecting evidence from the contemporary commentary that different readerships with different agendas treated the reputation of the Enterprise differently. Locals tended to deactivate it because they knew the paper was unreliable; rival editors tended to give it a strong negative valence; Eastern editors tended to give it a weakly negative valence, as they were suspicious of "Sagebrush" journalism but responded to the compelling scientific topics of the hoaxes. Not visible in this table is the expectation Entertainment, which deactivates all decisions about truth and leads to reading with suspended belief, similar to fiction reading. This of course was the stance of some readers who enjoyed the play of the hoaxes. Many readers, however, judging from their strong reactions, took the hoaxes as quite serious games with their realities, games with consequences.

The final and major consequence of a rhetorical redefinition of hoaxing must now be addressed. If a hoax is not a certain kind of text, what is it? Exactly what kind of "rhetorical exchange" is a hoax, and what "symbolic action" did it accomplish in its reading community? Though these questions have been answered on a very local scale for each author, this project—definitional as it is—begs for at least a limited historical generalization. A forty-five year span of reading and cultural development in American (1835 to 1880) initially seems too

much to comprehend with any one coherent, helpful statement. However, if we consider some similarities in the hoaxers' practices over this time, a few productive patterns emerge.

2. SIMILARITIES AMONG POE'S, TWAIN'S, AND DE QUILLE'S HOAXING PRACTICES

An obvious common denominator in the scientific media hoaxing of Poe, Twain, and De Quille is that they all seemed to derive an almost gleeful enjoyment from the hoax's capacity to create scientific realities for readers and thus to demonstrate creative authority over those readers. Poe's letter to Evert Duykinck about "Von Kempelen" eagerly trumpets the "quiz" as the "first deliberate literary attempt of the kind on record" and states that "nine persons out of ten" will have their perception of the Gold Rush altered by the hoax (Poe 319). His eagerness for his readers to recognize the genius behind the "Balloon-Hoax" reportedly led to a theatrical and public exposure of the hoax on the steps of the New York Sun's publishing house (Falk 48). Twain seemed no less pleased that his enemy Sewall, the coroner whom he razzed with "Petrified Man," was being plagued with requests for verification by readers: "I could not have gotten more real enjoyment out of him without killing him," Twain wrote (Clemens 860). And De Quille's comments on the backs of the letters sent him by professors inquiring after his zoological "discoveries"— "A Sold Professor—The 'Eyeless Fish' biz," "A Professor who was sold on the 'Highland Alligator.'"—are triumphant brags like notches on a rifle barrel.

In addition to the sheer pleasure of creation and establishing creative authority over readers, all three writers seemed to value the hoax's ability to

indirectly implement programs of social control—not just the demonstration of authority over readers, but an actual attempt to change readers' social behavior. Poe clearly had a social agenda with his hoaxes—chastising readers for promoting scientists over artists and substituting his own imaginative science for professionalized Baconian science. Twain wished to "educate" his readers to reject scientific and political illusion for a kind of self-determination that refused to extend itself imperialistically over other peoples. De Quille wished to maintain his considerable control over the construction of the idea of the West and to defend that idea from Eastern commercial appropriation.

A final and very telling similarity in the hoaxers' practices is their absorption with mechanics. Two of Poe's four hoaxes construct machines. Many of his other writings, especially "Maelzel's Chess-Player" and "The Gold-Bug," perform a strong correspondence between the construction of discourse and the engineering of machinery. Twain's hoaxes are not about machines, but much of his other "scientific" fiction—particularly A Connecticut Yankee in King Arthur's Court, An American Claimant, and 3,000 Years Among the Microbes—are actually about technology and mechanics. In addition, his partnership in the Paige typesetter, his inventions, and his installation of telephones and other gadgets in his own home are just a few instances of a well-documented lifelong fascination with machines.

These preoccupations with creation, authority, social control, and mechanics suggest that the rhetoric of the nineteenth century scientific media hoax may have operated by analogy to the machines that surrounded and

fascinated Americans during this time. This conclusion receives corroboration from the hoax's conditions of production, from contemporary commentary connecting textuality and mechanism, and from current historical analyses of machines and culture in nineteenth-century America.

3. THE HOAX AS A MACHINE

As we have already seen in comparing the hoax to the tall tale, the hoax contains elements that are strikingly industrial when compared to its oral predecessors. The hoax relied on the following machine-age institutions: the communicative distance of print technologies, a mass distribution network, and an industrial mode of authorship that encouraged anonymity as a means of effacing the individual and strengthening the perception of the institutional. Examining the conditions of production of the first media hoaxes reveal that the hoax is indeed a machine-age genre. Most early hoaxes or media satires in Britain, like Gulliver's Travels, Robinson Crusoe, or "A Modest Proposal," all date from a time after the Industrial Revolution. In fact, the Oxford English Dictionary, second edition, claims the earliest the word "hoax" appears as either a noun or a verb in print is in 1796 in Grose's Dictionary; most other usages are mid-nineteenth century.

Miles Orvell argues in The Real Thing that two primary conditions of the Industrial Revolution made fakery possible if not inevitable: first, machines cheaply produced thousands of near-perfect copies of goods, riveting the value of mechanism and fascimile deeply in the public consciousness; secondly, a booming industrial economy replaced transactions with trusted individuals with

repeated transactions with strangers, thus shifting public trust from personal *ethos* to general templates or schemata for transactions, a focus on form rather than content (Orvell xvii). Hoaxes were a special rhetorical mechanism for exploiting public trust in form and facsimile in order to display its instability. As such, they were attractive to any writer who wished to draw the critical public eye to key "cogs" in the industrial workings of America like businesses, the government, and professionalized science.

Comparing discourses to machines became a reflex in the thought of some of America's most prominent philosophers and writers. One of the most famous instances of this connection is discussed by Leo Marx in The Machine in the Garden. Ralph Waldo Emerson said by just looking at the workings of a steam-engine, he could read as though from a text the industrial progress the machine was engaged to produce; through its gears and pistons, it both announced and interpreted itself as a messenger of progress for the viewer (Marx 236). Henry Adams in the "Dynamo and the Virgin" chapter of The Education of Henry Adams figures the social discourses of his era as an enormous, sublime engine spinning almost out of control. And Mark Twain treats his composing abilities as mechanical potential when he writes his brother Orion, "…for the talent is a mighty engine when supplied with the steam of **education**—which I have not got, & so its pistons & cylinders & shafts move feebly & for a holiday show are useless for any good purpose" (Clemens 323). It is clear that mechanism, especially the mechanics of the steam presses that produced texts, became obvious metonyms for the production of discourse.

This mechanical metonymy brought with it a fear of runaway effects that could outpace the intentions of the creator of the discourse or machine. Emerson recorded these fears applied to technology and imperialism in his "Ode, Inscribed to William H. Channing" when he wrote, "Things are in the saddle and ride mankind." Henry Adams expressed very similar fears in a letter in 1862: "Man has mounted science, and is now run away with. I firmly believe that before many centuries more, science will be the master of man" (Adams Letters 290). These fears of snowballing effects, transferred to rhetoric, become worries about mass production and the decline of quality in literature. Poe himself, in his "broad-axe" criticism, repeatedly condemned the American publishing industry for literally manufacturing "a pseudo-public-opinion by wholesale," aimed at puffing American literature for strictly commercial purposes (Thomas and Jackson 305). He argued this "puffery" was destroying the very literature it sought to "elevate" (Thomas and Jackson 514).

These connections between texts and machines were more than just abstractions. They became ingrained at a very basic level of ontology, as readers came increasingly to associate reading and writing with printing, and literature with printed texts. Recently, scholars have discovered even deeper influences between the rhetoric of science texts and the technologies that both produced and justified them. Elizabeth Tebeaux, in her study of Renaissance technical manuals, found that authors often established the utility of these manuals by titling them with the names of contemporary technologies that readers knew and trusted on a daily basis. So, a treatise on military maneuvers was called The Military Garden,

and two healing manuals were titled The Castle of Helth and The Myrour or Glasse of helth (Tebeaux 84). These metaphors argued that the text was not just a text, but actually a technology or mechanism for improving the quality of life.

Likewise, the nineteenth-century writers who compared discourses to machines were not invoking an abstraction but were constructing a concrete metonymy to a very particular sort of machinery familiar to their readers: "gears-and-girders" technology, in Cecilia Tichi's terminology. In Shifting Gears Tichi defines gears-and-girders technology as machines that visibly transform energy, e.g. coal to steam, and that encourage their viewers to imagine themselves as co-engineers by laying the structure and workings of the mechanism bare to the novice eye, fostering a sort of "Oh, so that's how it works," *gestalt* experience (Tichi xii). A nineteenth-century scientific media hoax operated in a similar fashion: it transformed readers' assumptions about science into an embarrassed awareness of the instability of those assumptions, and it did this precisely by revealing the structure of those assumptions to the reader. Through this process, the hoax made its readers co-engineers; it implicated them in constructing the problem (professionalized science taking over American society) that drove the hoax in the first place.

The ability of the hoax to stand in for a social problem and transfer agency for that problem to its reader/viewer makes it a "hybrid" in Bruno Latour's theory of the relation of science to society as outlined in We Have Never Been Modern. According to Latour, all technologies, including popular science articles, instantiate the connectivity between Nature and Society, a dichotomy that the

project of modernity has futilely tried to create and maintain through analytical criticism. Latour argues that hybrids are the central irony of a modern world view, because the harder we try to segregate the human and non-human elements of our world, the more connectivity we create between the two in the form of technologies to do our science, economic and political alliances to regulate our societies, and texts to clarify our epistemological positions (12). Technologies, economies, polities, and texts are all hybrids. The popular science article is an archetypal hybrid, as it is a text written by humans that nevertheless conveys, supposedly transparently, a non-human or transcendent truth about the world. A scientific hoax, then, can be viewed as a sort of meta-hybrid. It is a technology whose function is to call attention to the hybridity of the scientific article; it accomplishes this function by forcing readers to confront their dependence on science news, to acknowledge the ways in which hybrids (science news articles) are substituting themselves for social understanding of and judgment about the natural world.

A mechanical model of hoaxing is therefore both immanent from the contemporary culture of Poe, Twain, and De Quille and corroborated by recent analyses of the relationships between machines and people in the modern era. As with any other model, it carries consequences for the hoaxes studied in this project. First, the idea of the hoax as a machine implies that the hoaxes we have examined were engineered with specific input and functions in mind. Indeed, this is the case, as the hoaxers gauged their readers' expectations and then constructed—via word choice, format, and argumentation—a mechanism that

satisfied these expectations and produced belief as an outcome. By planting clues or by exposing their machinations extratextually, the authors were able to use the machine of the hoax itself as a lesson. Readers were able to look back at the text/machine and see exactly the processes by which their assumptions were exploited to secure their belief. Expectations were both the motivating principle for the construction of the hoax and its fuel.

The notion of "fuel" surfaces another point of fit between the rhetorical approach taken toward hoaxing in this project and mechanics: both have to be in motion to work. Considered alone and inoperative, machines and hoaxes are mere artifacts of axles, cogs, or words. They have to be in action to be themselves, since both machines and hoaxes *are* the sum of their functions. This fact helps illustrate again why a hoax is no longer a hoax once it is removed by time or space from its original publication context. Both a machine like an old combine and a hoax like "M. Valdemar" lose their significance when viewed in a state of inactivity and removed from the contexts of their original operation—say in a junkyard, or in a science fiction anthology.

Finally, the notion of a hoax as a machine helps illuminate the experimental "tinkering" that all three authors appeared to do with their hoaxing over time. Each writer learned from a certain hoaxing experience what had worked, and what did not, and after this analysis adjusted his rhetoric to produce a more successful result the next time. Poe recorded a great deal of this process for us in his writings about Locke's "Moon Hoax" and "Hans Phaall"; certainly he produced a much more successful hoax the next time around with the "Balloon-

Hoax." Twain provided us with a negative portrait of this tinkering process, as he dramatized all of the reasons his "satires" failed and yet continued to persist in those rhetorical practices that coerced belief from readers. De Quille did not leave overt commentary on his revising of his hoaxing practices, but as we have seen, he responded to the success of the "Solar Armor" sequel by constructing numerous sequels for his remaining hoaxes, thus solidifying his authority as an expert witness to the West while making an implicit argument for the truth of his hoaxes via their persistence through time.

Viewing the scientific media hoax as a rhetorical and psychological machine fits well with the evidence from this study and argues for a feedback loop of influence between salient technologies in a reading culture and the structuring of rhetorical exchanges within that culture. If as Elizabeth Eisenstein and Walter Ong argue, print technology has affected (but not determined) readers' cognitive organization and function over the last four hundred years, and if as Kathleen Welch argues, the internet has affected the design of books, documents, and arguments in the classroom, it seems reasonable to suggest that a salient technology like the gears-and-girders-type machine could catalyze the development of a new rhetorical genre. Being tied to a particular type of technology keeps the hoax/machine correspondence limited locally and temporally, so these claims cannot be generalized to all times and places where hoaxing occurs. I will argue shortly, however, with respect to the recent Sokal hoax, that the mechanics of the scientific media hoax have evolved over the last century to mimic information technology instead of gears-and-girders technology.

4. EXTENSIONS OF PROJECT METHODOLOGY TO OTHER DISCIPLINARY PROBLEMS

I developed a new methodology for recuperating reader expectations during this project in order to account for the many extratextual dimensions of the historical reading of hoaxes. New Historicist and Rhetorical-Hermeneutical methods helped reconstruct the reader expectations from archival sources, and then Optimality Theory provided a basis for modeling their interaction and competition in the interpretive process. Because of the potential infinitude of expectations that readers can bring to bear on the reading process, I restricted the field of inquiry to consider only genre expectations and ethnoscientific expectations that contributed to decisions about the truth-value of the hoaxes.

Required and validated by the very nature of the hoax—which, as a parasitic genre, operates on reader assumptions about other genres—this new method "bought" us a way of analyzing the hoaxes that moved beyond the habitual confusion of generic terminology in hoax criticism (hoax/parody/satire/burlesque/science fiction) and the tendency to use hoaxes to psychoanalyze their authors. The expectation-based method allowed us to bring readers' daily experience with science in nineteenth-century America into contact with the interpretive process as a source of newsreading expectations. In addition, it helped us identify key cultural and generic expectations that encouraged readers to believe in scientific media hoaxes, and it provided us with a language to talk about why some of these hoaxes accomplished their purpose better than others. Because reader expectations about science and science news were also the target of these hoaxes' attacks, we were also prepared to discuss particular reader

expectations that authors identified through their hoaxing projects as dangerous or in need of revision, and this helped enrich our understanding of these authors' social projects.

Does this methodology, designed specifically for dealing with the rhetoric of hoaxing, have extensions outside of this project? An expectation-based methodology is useful in any interpretive context where readers and writers must coordinate their activity based on guesses about each other's world-views, needs, and desires. In this section I will make three specific applications of the project method to problems in genre studies, historical rhetorical analysis, and rhetoric of science.

4.1 Genre studies

Aside from an obvious extension to the analysis of other parasitic genres, like parody and satire, there is a less obvious but still pressing problem in genre studies that my method can help address. In the text-linguistic end of genre studies, there is currently an active debate about textual organization above the sentential level. Since the "paragraph" often co-occurs with but does not necessarily predict larger units of thought, researchers have become interested instead in the organizing notions of "discourse mode" and "genre." Carlota S. Smith's new book, forthcoming from Oxford, argues for the mode as the next important unit of organization in texts, and she provides evidence from grammatical functions like aspect and topicalization that help distinguish between different modes of discourse like narration and description. Genre, according to this school of thought, is a global organizing feature of discourse that reflects

readers' and writers' purposes in creating a coordinated discourse activity rather than strictly pragmatic-linguistics choices in constructing a discourse (Clark 62); a single genre can combine any number of discourse modes to achieve its author's purposes.

Monika Fludernik in her recent article for Style sums up just how complicated the problem of text typology has become over the last twenty years. Researchers have used parts of theories presented by Seymour Chatman, Robert Longacre, and James Kinneavy, among others, to posit many different levels of textual organization, some cognitively motivated, some psychologically motivated, some textually motivated. Fludernik's own typology recognizes a generic level she calls genres/text types and a lower tier she calls discourse modes; these terms correspond roughly to the ones employed by Carlota Smith.

However, a major difficulty with all of these schemata is that, while they make use of rhetorical research, like Longacre's and Kinneavy's, they tend to strip it of its rhetorical context. Judgments about levels of text organization become reflections of researchers' own academic readings of the texts as trained experts. Input from real readers/listeners would greatly enrich this project and potentially clear up the confusing taxonomies to some degree. Just as Rolf Zwaan observed the differences in two groups of readers reading the same text under differing generic labels (news vs. fiction), reader responses to certain discourse modes under different generic labels could help clarify the process by which readers recognize textual organization.

From studying Twain's hoaxing, we recognized that reader expectations occur at many levels, some of which interact, and some of which operate independently. Progression and comprehension, for example, are constraints on reading at a stage before interpretive or evaluative processes even begin; they decide what information gets admitted to the interpretive process. There are many other levels of expectations, too. In "Optimality Theory and Re-Reading 'The Garden of the Forking Paths,'" I argue for at least five levels of reading expectations or constraints:

1. Basic pragmatic expectations like anaphora resolution, parallelism, and topic chains.
2. Speech-act expectations: Grice's maxims operate here, as does J.L. Austin's theory of speech act recognition and coordination.
3. Generic expectations like the Popsci. criteria developed in this project.
4. Psychological meta-constraints on the reading activity like progression vs. comprehension.
5. Sociolinguistic constraints like the effect of the gendering of the reader on his/her interpretive process.

Reader expectations stratify into these different levels or arenas of play according to persistent patterns of interaction and competition: some expectations are constantly in contest with each other in certain interpretive decisions while others are irrelevant to those decisions. Even when all levels are operative during reading, their stratification could provide helpful clues to levels of textual organization. Reader-response or read-aloud protocol methods focused on

eliciting expectations could provide an independent means of distinguishing discourse mode from genre according to which expectations are interacting when readers are reading a descriptive paragraph, for example, as opposed to when they are trying to reconcile what they have read with the generic purposes of the text as a whole. Since genre is constituted by expectations and conventions, the method developed in this project promises a new level of insight into generic classification.

4.2 Historical rhetorical analysis

The most immediately obvious application of the project methodology to historical rhetorical analysis is to an area skirted by this analysis—the relationship of gender to reading expectations. Since Janice Radway's ground-breaking ethnography of women reading romance in 1987, critics of historical women's fiction in American have begun to focus on records of women reading and responding to fiction as a way of accounting for the influence of gender on reading in America. Barbara Sicherman's case study of the women of the Hamilton family in the late 1800s found evidence in reading journals that the Hamilton daughters developed a powerful ideal of female heroism from reading Victorian novels and histories. Sicherman focused on reading "codes" or practices developed in the "interpretive community" of the family unit, although she does not elaborate on what these "codes" were or how they were inculcated. A productive extension of Sicherman's case study would apply an expectation-based methodology to a wider community of readers—say newsreaders in New York, or a reading group responding to a certain text by a female author. There

are two angles that could be feasibly pursued with this method. First, contemporary reader responses to a popular novel by a woman, like Hope Leslie by Catharine Maria Sedgwick, could be compared to a contemporary male-authored novel on a similar subject, like James Fenimore Cooper's The Deerslayer. Differing reactions to similar elements within the two stories (violence, portrayal of Native Americans, portrayal of women, etc.) could index differing filters of expectations that were applied to women's writing and men's writing; these differing filters would suggest differing cultural standards for women's and men's literary behavior. On the other hand, similar reactions to these elements might suggest that generic conventions or shared experiences of the Revolutionary milieu operated more powerfully than gender in determining reading expectations. A second approach to the problem of historical reading and gender would be to compare contemporary reactions to the same text by both men and women to see if differing filters could be constructed according to gender of the reader—or, on the other hand, if reading expectations were acquired in common, contrary to the opinions of many current feminist scholars who believe that interpretation always varies as a function of reader gender. Combining both angles of expectation-based inquiry would provide a portrait of gendered reading in America that relied on the words of the readers themselves rather than on anachronistic judgments by literary critics long removed from the *kairos* of the original reading events. This method does not construct an objective portrait of gender and reading but rather writes a situated local history of it.

4.3 Rhetoric of science

Social historians of science who treat experimental procedures as political textual constructions have lately come under legitimate fire from scientists in the wake of the Sokal affair. The level of expert scientific knowledge required to analyze laboratory procedures prevents all but a few scientifically trained rhetoricians and historians from producing responsible histories of them. However, the texts that scientists themselves produce to explain their motivations and findings to the public are another matter. Not merely reports of objective natural facts, these texts are also political documents whose warrants require exposure and analysis by social historians and rhetoricians of science. This project is all the more urgent in the face of a crisis in the public funding of both the arts and sciences that has both groups scrambling for alternative means of support—particularly private, corporate support.

Scientific grant writing, aimed at both public and private granting institutions, is the primary way in which the sciences support themselves. Writing grants successfully requires not only experience with the generic conventions of the practice but also a political awareness of the values and desires of the granting institutions. Studies of grant-writing via analysis of successive drafts for changes in self-presentation and other rhetorical functions have already been conducted by researchers like Greg Myers. Since grant writers must project for themselves the reading expectations of their adjudicators, the methodology of this project can add a new dimension to work on grant proposals by providing ways to measure the achievement of expertise in terms of acquiring a filter of grant-writing

expectations that more and more closely matches the filter of reading expectations used by adjudicators. Two studies are feasible. The first, a comparative synchronic study, would compare the grant-writing processes of novice and expert grant writers. By conducting think-aloud protocols with each writer as s/he plans and writes the grant proposal, a filter of expectations operative in the composing process could be constructed. These expectations could then be compared to see if there were substantive differences between the novices' and the experts' projected model of their reviewers' expectations. A second diachronic study could be conducted with a few novice grant writers who, over a period of ten to fifteen years, become experts in writing grants. The changes in their projections of their readers' expectations over time could be compared with the results of the synchronic study to provide a key not only to the cognitive and rhetorical processes of acculturation in the genre of grant writing but also to the political acculturation of the scientists as they seek support for their endeavors among public and private readerships.

The groundwork for studies of reader expectations in scientific rhetoric has already been laid. In "A Study in Rhetorical Reading," Davida Charney compared the reading behavior of novice and expert biologists. Although her project was not framed in terms of reading expectations, per se, she found a significant difference in the reading behavior of the two groups, particularly in terms of genre/text structure and global meta-commentary: the expert scientists made between two and four times as many of these types of comments as novices. This outcome seems to indicate experts' heightened ability to think about and

verbalize communal expectations of genre. Lester Faigley's study of expert and novice revisers also indicated a greater sensitivity to macrostructural elements and genre-related goals by the experts. My proposed studies would help illuminate the process by which expert writers—grant-proposal-writing experts, in this case—acquire their rhetorical expertise.

Composition researchers recognize that greater awareness of both expert strategies and reader expectations produces more successful writing. Lorraine Higgins found that exposing novices to expert research strategies improved the quality of the novice writing. Karen Schriver found that teaching novices awareness of reader goals and desires improved their writing as well. These studies suggest a possible application of my proposed studies in technical writing classrooms. Expert knowledge may be transferable to novices to some degree via explicit statements of reader expectations; the results of my studies might then be used to accelerate the acculturation of novice scientist writers to the grant-writing process.

5. CONCLUSION

The project method has promising applications beyond its immediate context of development. Reader expectations represent cognitive, psychological, and cultural factors influencing the reading experience; thus, the method continues to explode inherited Romantic conceptions of reading as a solitary and individual act between a mind and a text. In this study of hoaxing we have seen that a hoax is not a person being tricked by a text but instead a complex and coordinated social project in which current events, culturally-inherited ideas,

celebrities, learned conventions of reading, personal agendas, media, and the projected assumptions of other readers all shape public decisions about what counts as the truth.

Hoaxing both reifies and responds to lack—gaps and inequities in status, education, and group membership. These gaps did not vanish with Victorian science; they have merely shifted in size and orientation as the arts and sciences have endured two World Wars, a Cold War, and most recently, the Science Wars. In many ways, Poe and Twain lost the fight to keep professional scientists from becoming America's new oracles. Barry Barnes claims that science is our new metaphor for comprehending both our physical and social realities. "For us," he writes in his study Scientific Knowledge and Sociological Theory, "natural order is a model for understanding social order" (2).

Yet even within this new order, hoaxing remains a first-rate strategy of comeuppance, a means of redressing power imbalances between the public images of the arts and science through the mass media. Since the social stakes have changed since the nineteenth-century hoaxes, the mechanics of the hoax have morphed to reflect current technologies and address current power struggles. The recent Sokal hoax is the perfect site to examine the evolution of scientific media hoaxing, since it is in many cases the inverse of the hoaxes we have studied—a scientist hoaxing literary critics on the grounds that they are trying to recapture the right to determine what counts as truth (or the very status of truth itself) for the American public. This hoax and its reception are analyzed in the Epilogue.

Epilogue: The Sokal Hoax

In 1996 Alan Sokal, a particle physicist at NYU, submitted an article to the prestigious cultural studies journal Social Text entitled "Transgressing the Boundaries: Toward a Transformative Hermeneutics of Quantum Gravity." Although the editors requested that Sokal cut parts of the article, including 19 pages of citations, in the end they accepted it unchanged for inclusion in their "Science Wars" issue, which purposed to examine the resistance of scientists to social constructivism. Strong social constructivism holds, after Michel Foucault, that "nature" itself is a social construction fraught with politics. The "Science Wars" issue framed itself as social constructivists' response to Paul Gross and Norman Levitt's 1994 book Higher Superstition, which criticized the sloppy appropriation of scientific concepts and terminology by cultural studies scholars.

On the same day that the "Science Wars" issue of Social Text came out, Alan Sokal published a companion article in Lingua Franca explaining that his Social Text article was a hoax. Sokal described it as an experiment: "Would a leading North American journal of cultural studies—whose editorial collective includes such luminaries as Fredric Jameson and Andrew Ross—publish an article liberally salted with nonsense if (a) it sounded good and (b) it flattered the editors' ideological preconceptions?" (Sokal "Revelation" 49).

The hoax became an industry overnight. The editors of Social Text retorted that they had not really been fooled after all, that they had read Sokal's article as an interesting "document" of resistance by scientists to cultural studies. That statement prompted a barrage of criticism. Scholars and lay people wrote into news media and academic journals alike voicing both support and disdain of Sokal's project, both criticism and support for cultural studies. The argument quickly exploded to the internet and the mass media and became the topic of university forums and journal issues; similarly, the issues raised by Sokal's original hoax were lost in a free-for-all about the postmodern Left, the quality of college education, the role of women and non-Western Others in the "Science Wars," and the very issue of truth—if there were any such thing in the first place, and if there were, was science its only trustworthy oracle?

Reaction to the hoax has received more scholarly scrutiny than the hoax itself. Jeanne Fahnestock and Marie Secor cogently dissected the warrants of Stanley Fish's condescending dressing-down of Sokal in the New York Times. The editors of Lingua Franca have published an entire volume of reactions to the Sokal hoax, and the reactions to those reactions, both in the domestic and foreign media. The issues of the "Science Wars" in America, the "two cultures" controversy, and the social constructivist approach to science studies have all been commented upon by eminently qualified scholars in both the sciences and arts. What this project can contribute to the Sokal affair is an description of how the hoax functioned in its original context and why it functioned differently than, say, a critical article on the same topic or an exposé-style book like Gross and

Levitt's. An analysis of the language used to describe the hoax in the reactions to it can also illuminate how scientific media hoaxing has changed since the nineteenth century (and how it has remained the same).

Sokal's hoax observed many of the principles of hoaxing left over from the nineteenth-century scientific media hoaxes. It conformed to the format of the academic cultural studies article by employing heavy citing. It appealed to expert authority in those citations by quoting founding scholars in the cultural studies movement, like Jacques Derrida, Michel Foucault, and Stanley Aronowitz. It employed jargon from the field, as in the following example: "Natural scientists…cling to the dogma imposed by the long post-Enlightenment hegemony over the Western intellectual outlook" (217). Significantly, it also included scientific jargon like "Planck-scale" and "open strings" that was unfamiliar to cultural studies scholars, just as Poe and Locke laid an impenetrable veneer of astronomical jargon over their hoaxes in order to give them an air of scientific authority.

The scientific jargon constituted Sokal's most interesting trick and a key point for our discussion of the effects of his hoax: this trick was a version of De Quille's "Emperor's New Clothes" appeal. Fascinatingly, many of the media reactions to the hoax (and Sokal's own revelation of it) referenced exactly this folk tale—but from the perspective of the bystanders who watch the emperor parade by them in his birthday suit. Many critics felt cultural studies had finally been "exposed" by Sokal's hoax for the intellectual charade and waste of taxpayer money that it really was. However, there is another angle to the "Emperor's New

Clothes" story, the angle De Quille also exploited in his hoaxing, and that is the tailors' point of view. Sokal, as the canny tailor, casts the editors of Social Text in the emperor's role. Unwilling to admit to anyone that they really did not know enough about science to judge the merits of Sokal's quantum mechanical argument, they published his article anyway because it was better to risk fall-out than to lose the chance to have a "real" scientist supporting cultural studies (Sokal 144). The editors' own statements corroborate this reading to some extent. In their defense of their acceptance of Sokal's article, then claimed that because they "try to keep abreast of cultural studies," they viewed Sokal's contribution as "unusual," coming from a natural scientist, and therefore "worth encouraging" (Robbins 55). This focus on maintaining face within a particular community sometimes distracts attention from facts and details, and that is exactly the same psychological response De Quille counted on in his readers when he employed his "anyone who knows anything knows X" strategy for securing belief in his hoaxes.

Another familiar feature of Sokal's hoax is the public notoriety it created for him as a counter-cultural Leftist fighting, in the view of some, the excesses of the culture-studies Left and, in the view of others, the entire bloated edifice of the academic humanities. There is at least some evidence that this notoriety was Sokal's central goal in constructing his hoax. First, there is the evidence of the hoax itself. In the Lingua Franca piece Sokal defended attacks on his ethics by saying he chose "satire" as a weapon because it was "an attack that could not be brushed off." The very reason it cannot be brushed off is because a hoax constructs a Barnumesque public spectacle beyond the control of its victims: the

spectacle of a victorious, notorious expert versus losing dupes. If Sokal had not intended to construct this *ethos* for himself, he would have worked through conventional channels to voice his criticisms of the Social Text crowd directly in an academic essay. Further evidence of Sokal's desire for notoriety comes from Sokal's active role in perpetuating the public life of the hoax. He wrote hundreds of emails in its wake, attended public forums on it, wrote response pieces for national and international journals. All in all this campaign cost him a three-year black hole in the "Publications" section of his physics CV. In 1998 when it appeared the hubbub was going to die down, he published a book with European physicist Jean Bricmont called *Les Impostures Intellectuelles*, in which he extended arguments about the inadequacy of French postmodernist critiques of science that he had begun making during the reaction to his hoax. Finally, there is the evidence of the evolving scope of Sokal's arguments over time. He began, as in Lingua Franca, insisting he only had a small "target" in mind with the hoax, the editors of Social Text. But as reader reaction expanded his role and his position, crediting him with nothing short of an attack on culture studies as a whole for its role in diminishing the public reputation of American science, Sokal stepped into these larger and larger shoes with such alacrity that it seemed clear that this is where he intended to go with his hoax in the first place. In a public lecture given at a New York University forum just a few months after the hoax was published, Sokal unveiled this expanded vision:

> *Social Text* is not my enemy, nor is it my main intellectual target…. Rather, my goal is to defend what one might call a scientific

> *worldview* -- defined broadly as a respect for evidence and logic, and for the incessant confrontation of theories with the real world; in short, for reasoned argument over wishful thinking, superstition and demagoguery. And my motives for trying to defend these old-fashioned ideas are basically *political*. I'm worried about trends in the American Left -- particularly here in academia -- that at a minimum *divert* us from the task of formulating a progressive social critique, by leading smart and committed people into trendy but ultimately empty intellectual fashions, and that can in fact *undermine* the prospects for such a critique, by promoting subjectivist and relativist philosophies that in my view are inconsistent with producing a realistic analysis of society that we and our fellow citizens will find compelling. ("Plea")

It seems clear from these comments that Sokal's ultimate goal was a broad intellectual stance, and the hoax genre afforded him the ideal public stage on which to take it.

As counter-evidence for these claims about Sokal's intentionality with respect to the construction of his public *ethos*, one might observe that Sokal initially tried to distance himself from the notoriety the hoax constructed for him and the aspersions it cast on him ethically. As mentioned above, his Lingua Franca revelation eschews the term "hoax" altogether. In later commentary, however, including the New York University forum speech excerpted above, he began owning his original article as a hoax, and this shift in terminology coincided with his acceptance of a larger public role as a spokesperson for the

natural sciences against the incursion of cultural studies. It remains to be seen if the ethics of the hoax will infect Sokal's reputation as an academic, as in the case of Poe and Twain, or if, as in De Quille's case, Sokal's physics is a separate enough endeavor from his social commentary that his scientific reputation will remain unsullied among his peers. Certainly, humanists like Stanley Fish have argued that Sokal's scientific ethics are suspect because of his media ethics. But Fahnestock and Secor countered Fish by arguing that Sokal's projects are ethically as well as topically separate. Further, since Sokal attacked members of a rival field, his reputation among particle physicists and other scientists may remain unsullied or may perhaps be strengthened because these colleagues are "on his side."[27] The test of time, as always, will determine Sokal's historical reputation as a scientist.

Setting these familiar features of Sokal's hoax aside—its construction of notoriety, its dependence on jargon and citation to create verisimilitude—crucial rhetorical innovations distinguish it from the nineteenth-century hoaxes. First, Sokal is a scientist creating a literary hoax for cultural studies scholars, which is an inversion of the nineteenth-century scientific media hoax dynamic. Now, it is our scientists, not our artists, who feel their social prestige is at stake. Hoaxes remain a subversive strategy for taking the stuffing out of newly prominent people or institutions. The commentary in the Sokal affair figures literary scholars as the pretenders to the throne whom scientists are desperately trying to disinherit. This

[27] I am indebted to Davida Charney for this insight. For a contrasting case of peer reaction to scientists creating controversy in their own field, see Charney's "A Study in Rhetorical Reading: How Evolutionists Read 'The Spandrels of San Marco.'"

reactionary rhetoric is backed up by economic metaphors in the reactions to the hoax. The issue of the public funding of science keeps coming up: some critics suggest Sokal and his fellow physicists are sniffing around for a new enemy after the Cold War and the collapse of the defense industry (Latour 124); others suggest that Sokal is bitter because cultural studies and science studies are starting to dampen the American enthusiasm for science—an enthusiasm based on science's spectacular performances for America in the World Wars and the Cold War (Robbins 58). Both of these views paint Sokal and his colleagues as threatened by the incursion of culture studies—the exact inverse of the picture that Poe's and Twain's hoaxes painted of artists being threatened by scientists.

Another significant difference in Sokal's hoax is in the nature of the hoax itself. It is not immediately comparable to our nineteenth-century scientific media hoaxes, as it was not a story in a newspaper about cultural studies scholars finding evidence that things disappeared when they stopped thinking about them or proving that gravity was propaganda. The hoax targeted a small professional group—the editors of Social Text. They were the audience who had to make the crucial decision about the truth or falsehood of the text in front of them. However, because it is the job of those editors to make widely public the results of those value judgments, the hoax had a second life, so to speak, in which both it and Sokal's revelation of it appeared simultaneously to a different and much wider readership. For this second readership, Sokal's article actually read as a parody since the readers were in on the joke rather than on the business end of it; they are the emperor's subjects watching him parade by naked. This crucial

distinction helps explain why there is so much terminological confusion in the reaction to Sokal's hoax. The editors of Lingua Franca sum up the mayhem cleverly:

> In the headlines alone, Sokal's article has been called a hoax, a joke, a sting, and affair, a *paródia*, a prank, *uno sfregio*, a spoof, a con, *un canular*, a fraud (delicious and malicious) a ruckus, *la farce parfaite*, a Pomolotov Cocktail, a *brincadeira*, a *mystification pédagogique*, double-speak, *un'atroce beffa*, nonsense, gibberish, rubbish, and hokum. (6)

Many of these variants, of course, refer to differing aspects of the Sokal affair and amount to scholarly word play. However, there is one rhetorically-significant confusion of terminology, even in Sokal's own discussion of his hoax—the confusion between hoax and parody. The article's bi-level audience (the "hoaxed" editors and the general public enjoying the "parody") legitimates both terms, even though no one involved in the controversy clarified this point. Many commentators do demonstrate an unconscious awareness of the difference: criticisms of Sokal's agency in the matter tend to favor the word hoax, especially as a verb; those commentators who discuss the article's literary aspects or who efface Sokal's agency tend to prefer the term parody. Sokal himself uses both terms eventually (the debate drags on for at least two years, and Sokal and Jean Bricmont publish a follow-up argument in 1997), but in the initial revelation of the hoax in Lingua Franca in 1996, Sokal carefully avoids using the word hoax. He uses "parody," "satire," "spoof," and "experiment," and he accompanies these words with corroborating words like "silliness" and "nonsense." As we discussed

with respect to author intentionality, the word hoax carries with it a connotation of villainous agency. In his revelatory article, Sokal is clearly trying to impose a level of artistic and aesthetic distance between himself and his deliberate attack on the reputation of the editors of Social Text.

A final difference between the Sokal hoax and the nineteenth-century hoaxes is both a difference and a similarity. The Sokal hoax is still patterned after a salient technology in its reading culture—but that is now the computer virus, rather than the gears-and-girders-type machine. Kaufer and Carley argue that the virus is now the major metaphor for communication among researchers in the field (Communication 2). The computer virus, a hybrid of mechanical and organic villainy, is therefore the perfect double for the rhetorical mechanics of the twenty-first century hoax. Far from being a clever argumentative convenience, this metaphor actually helps explain key aspects of Sokal's hoax: his choice of the hoax as a mode of attack, his hoax's dependence on the internet, and his choice of Social Text as his target.

The connection between the computer virus and the Sokal hoax is apparent if we consider the language of reaction to the hoax, the media of transmission and reaction, and the dominant mode for hoaxing in the 1990s. Sokal himself uses the words "deception," "weapon," and "attack" in his Lingua Franca piece to describe his project. The reactions to the hoax give it all sorts of labels, but two pervasive metaphors (aside from the emperor's new clothes) pick up on Sokal's own assessment: terrorism and mechanics/technology. The hoax is referred to as "intellectual terrorism" and Sokal is compared to Ted Kaczynski;

these references are accompanied by references to bombs and explosions, including words like "defuse," "detect," "breach," "attack," "burn," and "fireworks." The other persistent analogy is to mechanism, particularly to a trap. The mechanical language includes words like "picks up steam," "contrived," and "fabricated." The hoax is elsewhere figured as a "trap" that was "camouflaged" for "prey" that "took the bait" or "lure."

The common denominator between terrorisms, traps, and technology is not immediately apparent unless we consider a major player in the Sokal affair that has been almost entirely overlooked in the voluminous commentary—the internet. Peter Osborne was the only major commentator who even mentioned that the internet "played a significant role in framing and sustaining the affair" (196), although he did not go into much detail about this role. He noted that much of the discussion after the hoax's publication took place in emails and internet forums between the principals and observing critics, which is significant. However, he did not mention that the crucial negotiation of the placement of Sokal's hoax in Social Text took place between the editors and Sokal via the internet. Nor did he mention that to this day the hoax is sustained by a virtual reconstruction of all of the original texts and texts of reaction on Sokal's personal webpage, where it shares space with propaganda about *Impostures Intellectuelles* and commentary of other natural scientists criticizing cultural studies.

I argue that the strong internet presence constructed by Sokal for his hoax is not coincidental. Sokal is exploiting the primary medium of twenty-first-century hoaxing. From "how to make your own atomic bomb" websites to fake

web diaries of teenagers with STDs to "urban legend" and scam emails, the internet has picked up where nineteenth-century print media. Objectivity standards in print and television media have made them inhospitable (while not impervious[28]) to hoaxing; meanwhile, the development of the internet offers an attractive alternative medium for hoaxers. First, its distributed network resists monitoring by any central authority and therefore frustrates would-be censors and referees. Print publishing houses, doing business in the physical rather than the virtual marketplace, are subjected via their physicality to a higher degree of centralized control; there is somewhere you can "go" to stop a story or interrogate a writer. On the internet anyone with access to a server can publish and disseminate any message they wish. Further, this lack of centralized authority makes the construction of internet *ethos* difficult and interesting. How does an anonyomous email or webpage accrue authority? In the absence of personal information or references, resources like graphic presentation, timeliness of topic, celebrity, language, and ubiquity play a powerful role in establishing the credibility of information received via the internet. Interestingly, if we look at our filters from the nineteenth century, a similar result can be obtained by stripping off the top tier of expectations—those associated with the reputation of the author and the medium. In the absence of those powerful deciding factors, expectations concerning plausibility and novelty, visual impact, format, and language

[28] An interesting example is hoaxer Joey Skaggs, who through clever press-releases has gotten TV and print media to broadcast several of his hoaxes over the last 30 years, including a "Fat Squad" that bullies its clients into thinness, and "Solomon" an artificial-intelligence jury that Skaggs "announced" in the wake of the O.J. Simpson trial; it was reported by CNN and CBS radio news, among other media.

determined interpretation for Poe's, Twains, and De Quille's readers. In this way the media revolution represented by the internet can be characterized as a diminishment of the resources readers have at their disposal to guide judgments about truth and falsity.

In spite of this anarchic picture, the internet is hardly a den of thieves. Trustworthy institutions and foundations also make use of the internet to stay in convenient contact with their clients. Therefore, enough useful and credible information comes via the internet that it presents a very similar environment to the penny daily of the 1830s. A carrier of both fact and fiction, it is the perfect milieu for hoaxes.

The most common type of internet hoax is the email hoax. It is very quick, anonymous (with the use of fake names and email accounts), and has the added bonus of accumulating *ethos* for the hoax through the headers of concerned friends who forward the warnings about gang initiations, fast food contaminations, and computer viruses. The computer virus scam email is the most interesting of these internet hoaxes for our purposes because it actually performs the fear of contracting the virus, i.e., "I got this email, so I could get the virus just as simply." Real computer viruses, of course, are easy to contract via the Internet; the Klezworm virus is one of the most recent examples. It sends itself as a message with a vague lure of a subject header, like "per your request," and when it is opened, it finds every confidential file in your computer and attaches it to emails that go out to everyone on your email list.

Sokal, likely unconsciously, adopted the signature of this salient technology to pattern his hoax after. Like a computer virus, his hoax contained "lures" that tempted the editors of Social Text (called appropriately in some commentary the "host" journal of the hoax) to include it in the "Science Wars" issue. However, Sokal's simultaneous revelation in Lingua Franca made Social Text disseminate a far different message from the one they intended to communicate with that issue. The other articles in the issue were practically forgotten, and instead the attention of Social Text's readers was focused on the gullibility of the editors and on Sokal's indictment of cultural scholars for their sloppy handling of scientific concepts. The sensation caused the "Science Wars" issue to sell out. In addition, the hoax disseminated over the internet to reach universities and popular media, who then reprinted Sokal's basic message ("Cultural studies are ignorant and politically dangerous; science is still the only objective channel to truth and reality") to a wide lay audience.[29] The essential functions of the computer virus—luring a host machine into reproducing and disseminating the virus to other machines—are all performed in Sokal's hoax.

A computer virus damages the host and uses the host to spread its code, its message, across the internet, and both this damage and this dissemination were clearly Sokal's intention. Osborne comments, "Sokal has used the media

[29] Kaufer and Carley find, against Walter Ong's hypothesis that new media gradually kill old media, that in fact combining multiple media—like print and the internet—augments the speed and range of communications (Communication 6). This finding may explain why Sokal quickly shifted the central action of his hoax to the internet: he was both responding to its proliferation to electronic media and facilitating it in order to reach as wide an audience with his hoax as possible.

skillfully, both to register his hoax and to generalize its point into a full-scale attack on 'cultural studies of science' and 'postmodern cultural studies' (which he tends to treat as equivalents)" (197). Just as computer virus hoax emails perform the danger of the "viruses" they warn users about, Sokal's virus-hoax performed the vulnerability of cultural studies to attack by any discipline whose discourse they used without true understanding. Sokal's specific goals dictated his choice of the hoax over other methods of public criticism. He explained his motivations in his revelation:

> In the end, I resorted to parody for a simple pragmatic reason. The targets of my critique have by now become a self-perpetuating academic subculture that typically ignores (or disdains) reasoned criticism from the outside. In such a situation, a more direct demonstration of the subculture's intellectual standards was required. But how can one show that the emperor has no clothes? Satire is by far the best weapon; and the blow that can't be brushed off is the one that's self-inflicted (53).

Sokal's "Emperor's New Clothes" reference is doubly significant. First, it implies that print media, when compared to the internet that sustained much of "l'affaire Sokal," is the "emperor" of media. The academic journal is the prestige form against which the cyber-manifestations of Sokal's hoax—including his email negotiations with the editors, his online debates, and his personal webpage that documents and reifies the hoax—constitute a guerilla-style assault. A second but equal significance of Sokal's "Emperor's New Clothes" allusion is that it references the primary social function of hoaxing, which Sokal exploited even if

unconsciously: the hoax's ability to call into question the construction of reality. The hoax, as we have discussed, operates at the stasis of existence; it play with what holds true in the world-views of its readers. An evaluation can be drawn from it, and most of the discussion of the hoax has been absorbed in evaluation, as Sokal intended. But the basic function of the hoax is to call into question assumptions about the real world. This is what made it the ideal mode of attack for his purposes. Sokal positioned himself as defending objective scientific reality from the attacks of the "emperors" who claimed there was no objective reality.[30] What better way to make his point, then, than to use a hoax to show that the worldview that the emperors cloaked themselves in amounted to a lot of thin air and that scientists, in the final accounting, were the tailors with their eyes wide open and their purses full of the emperors' money.

[30] Andrew Ross, Stanley Aronowitz, and Bruno Latour, among others, strenuously objected to this claim, arguing that no sane cultural critic thinks there is no such thing as reality. They corrected Sokal's misapprehension by saying that what is at issue in cultural studies of science is our inability to separate fact from value when claims about reality become public and therefore inescapably rhetorical.

Appendix: How to read tables in Optimality Theory (OT)

Table A1 is a representation in OT of how English speakers unconsciously select the optimal syllabification of the word "onset" (/ansɛt/ in International Phonetic Alphabet notation):

Table A1: Syllabification of /ansɛt/ in OT

	FAITH	ONS	NOCODA
✓ an-sɛt		*	**
Ans-ɛt		*	*!**
<a>nsɛt	*!		*

What the parts of the table mean:

- The leftmost column lists the most probable syllabifications of the English word "onset." A hyphen indicates the syllable break in the word. The bracketed <a> in the third **candidate** represents a deleted vowel (which is actually a fairly common phonological feature in colloquial English: think of the nasal "N-n" with a head shake in place of "no, no").
- The top row lists all phonological **constraints** that apply to syllabification left-to-right from strongest (inviolable) to weakest (often violated in practice). The **ranking** was predetermined from analyzing many phonological data sets in English. The constraint FAITH requires that all parts of a word should be pronounced; ONS says syllables should start with consonants; and NOCODA says syllables should not end in consonants. The solid vertical line between FAITH and ONS divides the levels of ranking and tells us that FAITH crucially **dominates** both ONS and NOCODA. ONS and NOCODA are unranked with respect to each

other because they never operate on the same part of the syllable and therefore never compete with each other; the vertical dotted line signifies this lack of competition. The ranking of the constraints in this tableau could also be notated in a linear form as FAITH >> {ONS, NOCODA}, where ">>" signifies domination and bracketing with commas signifies equality of rank and therefore lack of competition.

- The **asterisks** in the matrix of the table represent **violations** of particular constraints. The violations add up like penalty points against a candidate, with a violation of a stronger (leftward) constraint counting more than a violation of a weaker one. An **"!"** follows and indicates the fatal violation, the one that knocks the candidate out of the running for optimal form (violations are usually counted up from right to left, weakest to strongest). A candidate can earn a fatal violation either by violating a higher-ranked constraint than the other candidates do, or by accumulating more total violations than other candidates at the same level of ranking.
- The check mark in the candidate column indicates the **optimal** candidate phonological form, the one that "wins" by accumulating the fewest violations of higher-ranked constraints. This is the form speakers actually use when they pronounce the word "onset."

The results of the syllabification of /ansɛt/:

In the example in Table 1, "an-sɛt" is the optimal form. While it has more total violations than "<a>nsɛt," it satisfies FAITH, the highest ranked constraint. The runner-up, "<a>nsɛt", does not. The third form, "ans-ɛt", gets knocked out of

the running even earlier because it accrues more NOCODA violations than either of the other two forms due to a consonant cluster "ns" at the end of the first syllable.

Optimality Theory applied to a decision about a hoax's truth-value

Table A2 represents a decision about the truth-value of Richard Adams Locke's "Moon Hoax" by a reader who values spectacle over strict technical consistency and accuracy (see Chapter Two, section two, for a history of this hoax):

Table A2: A reader's decision to believe the "Moon Hoax" based on spectacle, not science

	Novelty	Sensation	Popsci.	Plausibility	Internal Coh.
✓TRUE				********	*
FALSE	*	*	*!		

The solid vertical line locates the crucial competition—between first impressions and factuality, essentially. The dotted lines denote a lack of evidence for competition in this particular decision about the truth of the hoaxes: i.e., Novelty, Sensation and Popsci. (verisimilitude) are equally and highly ranked in this reader's estimation; thus, these expectations "work together" rather than compete with each other as the reader reads.

In the graph the nine factual errors in Locke's story are counted with nine asterisks (representing eight violations of Plausibility and one of Internal Coherence. In spite of all of this faulty evidence, this reader still believes Locke's story to be "true" because to consider it "false" would force the admission that something novel, sensational, and "verisimilar" is not true. In this reader's world-

view, the correlation between spectacular first impressions and truth cannot bear violation, and so the "false" interpretation loses. The exclamation point on the chart indicates that all violations at this highest level of expectation are unacceptable (the convention is to mark unacceptability on the very first violation that renders the candidate interpretation unacceptable, and this is usually the weakest or right-most violation on a given level, as expectation strength increases from right to left). Thus, the candidate with more total violations actually wins in this case because of the very low value assigned to scientific accuracy by the reader. This graph accurately represents Poe's complaints about the values of popular science newsreaders. Now, a table of Poe's personal reading of the hoax would look almost exactly the reverse of the one above, with a judgment of "false" for the hoax and with plausibility and consistency ranked very firmly over novelty, sensation, and "verisimilitude."

Glossary

The following terms and symbols are essential for understanding Optimality Theory as it is adapted in this project:

*: indicates one violation of a particular reading expectation

!: an exclamation mark placed after a violation "*" indicates that that violation is fatal, i.e. that candidate interpretation is now disqualified from the competition to be the optimal interpretation.

candidate: a possible interpretation of a text, i.e. "true" or "false" in the case of the simple truth-value decisions about the hoaxes considered in this project. The interpretation that best survives the "filter" of the reader's preconceptions about science and science news is identified as the **optimal candidate** or interpretation. Occasionally the reader will have insufficient information to select an optimal candidate or will value two conflicting preconceptions equally. In these cases, two or more interpretations will be equally entertained until further information is gathered or a value judgment is made.

constraint: The term in Optimality Theory for a rule that governs a particular decision matrix. Constraints are stated in prepositional form. For reading constraints, see the definition of "expectation."

dominate: to be ranked higher than in importance or value. Domination is determined on the basis of readers' decisions in the face of competing expectations. For example, if a reader chooses to believe a sensational

news item regardless of the fact that it is riddled with scientific errors, Sensation crucially dominates Internal Coherence for that reader.

expectation: a preconception that influences interpretation while reading. Expectations are stated as propositions that are either met or violated during a particular reading experience of a particular text. The expectations used in this project are expectations of genre (science news) and ethnoscience (popular cultural knowledge about science):

Authority: The author or authority figure's previous reputation holds.

Comprehension: It is optimal to comprehend everything written in a story. (This is not a conscious expectation; it is more properly a constraint on the reading activity that determines what information gets admitted to the interpretive process)

Foreign: Anything foreign is good and probably true.

Internal Coherence: If the claims made by a story are logically consistent, it is probably true.

Medium: The previous reputation of the medium holds.

News: It is optimal to read news non-linearly, skipping to the Main Events and Details of Main Events sections first and only reading background and supporting material as time and interest allow.

Novelty: New discoveries are highly valued and probably true.

Plausibility: If it seems like it could happen, it probably did.

Popsci: Stories that sound like true science reports probably are. Sub-expectations within this category are as follows:

Long: Longer popular science articles are often given in installments.

Decoration: Popular science reports will often be decorated with bold headlines and woodcuts.

Mystery: Popular science reports often have a "mystery" opening signaled by words like "wonders"

Ignorance: After the opening, popular science reports generally indicate that the public is ignorant of a particular principle/phenomenon.

Wisdom: After the lament for ignorance, pop sci reports generally point out a wise person who knows better.

Detail: Pop sci articles will often have a lot of technical detail, which is a good indicator of truth.

Analogy: The details in a pop sci article will often be explained with analogy to well-known phenomena.

Use: Pop sci articles often finish with an evaluation of the benefit, physical or metaphysical, of the scientific principle/phenomenon.

Entertainment: Reading of pop sci articles is for entertainment, not truth, value.

Progression: It is optimal to read a story as fast as possible. Competes with Comprehension (see note to Comprehension).

Sensation: Sensational elements in a story have a high literary and truth-value.

Witness: If trustworthy locals reportedly witnessed a phenomenon, it is probably real.

ranking: a crucial ordering of expectations based on importance to the reader. See "dominate." Ranking is indicated graphically by solid vertical lines separating levels of rank; everything to the left of a solid line dominates everything to the right of it. Equality of rank is indicated by dotted vertical lines between expectations that do not compete with each other and therefore are at the same level of ranking in the reader's value system.

Bibliography

"About Two Months Ago..." New York World 1874. Ctn. 1, Fldr. 120, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

Adams, Henry. The Education of Henry Adams. New York: Houghton Mifflin Company, 1918.

---. Letters of Henry Adams. Ed. Worthington Chauncey Ford. Vol. 1. New York: Houghton Mifflin, 1930.

Altick, Richard D. The English Common Reader: A Social History of the Mass Reading Public, 1800-1900. Chicago: University of Chicago Press, 1957.

Anderson, John R. "Act: A Simple Theory of Cognition." American Psychologist 51.4 (1996): 355-65.

Atkinson, Dwight. Scientific Discourse in Sociohistorical Context. Mahwah, New Jersey: Lawrence Erlbaum Associates, 1999.

Austin, J. L. How to Do Things with Words. Cambridge: Harvard University Press, 1975.

Barbossa, Pilar, *et al*., eds. Is The Best Good Enough: Optimality and Competition in Syntax. Cambridge: Massachusetts Institute of Technology Press, 1998.

Barnes, Barry. Scientific Knowledge and Sociological Theory. Boston: Routledge & Kegan Paul, 1974.

Barrett, Elizabeth B. “Letter to Edgar Allan Poe.” October 20, 2001. 1846. web page. Edgar Allan Poe Society. Available: http://www.eapoe.org/misc/letters/t4604000.htm. January 10 2002.

Barritt, C. L. "Why Are Not the Sciences Better Understood?" Broadway Journal 1.8 (1845): 115-17.

Barthes, Roland. "Textual Analysis of a Tale of Poe." Trans. Matthew Ward, and Richard Howard. On Signs. Ed. Marshall Blonsky. Baltimore: Johns Hopkins University Press, 1985.

Bazerman, Charles. The Languages of Edison's Light. online ed. Cambridge, Massachusetts: MIT Press, 1999.

---. "Physicists Reading Physics." Written Communication 2 (1985): 3-24.

---. "Reporting the Experiment: The Changing Account of Scientific Doings in the Philosophical Transactions of the Royal Society, 1665-1800." Landmark Essays on Rhetoric of Science: Case Studies. Ed. Randy Allen Harris. Landmark Essays. Mahwah, New Jersey: Hermagoras Press, 1997. 241.

---. Shaping Written Knowledge. Madison, Wisconsin: University of Wisconsin Press, 1988.

Beer, Gillian. Darwin's Plots. Cambridge, UK: Cambridge University Press, 2000.

Benton, Richard P. "Is Poe's 'The Assignation' a Hoax?" Nineteenth-Century Fiction 18.1 (1963): 193-97.

Berkenkotter, Carol, and Thomas Huckin. "News Value." Genre Knowledge in Disciplinary Communication. Mahwah, New Jersey: Lawrence Erlbaum Associates, 1995. 27-44.

Berkove, Lawrence I. "Connecticut Yankee: Twain's Other Masterpiece." Making Mark Twain Work in the Classroom. Ed. James S. Leonard. Durham, N.C.: Duke University Press, 1999. 318.

Betts, John Richard. "P.T. Barnum and the Popularization of Natural History." Journal of the History of Ideas 20 (1959): 353-68.

Bitzer, Lloyd F. "The Rhetorical Situation." Philosophy and Rhetoric Supplement (1992): 1-14.

Blair, Walter, and Hamlin Hill. America's Humor: From Poor Richard to Doonesbury. New York, NY: Oxford University Press, 1978.

Boese, Alexander. What Is a Hoax? November 18 2000. webpage. Available: http://helix.ucsd.edu/~aboese/what.html. November 30 2000.

---. The Museum of Hoaxes. New York: Dutton, 2002.

---. The Predictions of Isaac Bickerstaff. 2002. webpage. Available: http://www.museumofhoaxes.com/bickerstaff.html. February 10 2002.

---. Dr. Egerton Yorrick Davis. 2002. web page. Museum of Hoaxes. Available: http://www.museumofhoaxes.com/yorrick.html. May 31 2002.

Boghossian, Paul. "What the Sokal Hoax Ought to Teach Us: The Pernicious Consequences and Internal Contradictions of 'Postmodernist' Relativism, and Selected Responses." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 172-86.

Bois, Danuta. "Maria Mitchell." 1996. webpage. Distinguished Women Past and Present. Available: http://www.distinguishedwomen.com/biographies/mitchell.html. January 14 2002.

Booth, Wayne C. The Rhetoric of Fiction. Chicago: University of Chicago Press, 1961.

Brown, Lee Rust. The Emerson Museum. Cambridge, Massachusetts: Harvard University Press, 1997.

Bruce, Robert V. The Launching of Modern American Science, 1846-1876. first ed. New York: Knopf, 1987.

Bryant, John. "Poe's Ape of Unreason: Humor, Ritual, and Culture." Nineteenth-Century Literature 51 (1996): 16-52.

Burke, Kenneth. Counter-Statement. Berkeley, California: University of California Press, 1968.

Burnam, Tom. "Mark Twain and the Paige Typesetter: A Background for Despair." Western Humanities Review 6 (1951): 29-36.

Callon, Michel and John Law. "On Interests and Their Transformation: Enrolment and Counter-Enrolment," Social Studies of Science 12 (1982): 615-26.

Campbell, George. "Philosophy of Rhetoric." The Rhetoric of Blair, Campbell, and Whately. Ed. James L. Golden and Edward P. J. Corbett. Carbondale, Illinois: Southern Illinois University Press, 1990. 139-272.

Campbell, Karlyn Kohrs. "Consciousness-Raising: Linking Theory, Criticism, and Practice." Rhetoric Society Quarterly. (2002): 45-64.

Carter, Steve. "A Possible Source for 'the Facts in the Case of M. Valdemar'." Poe Studies 12 (1979): 36.

Charney, Davida. "A Study in Rhetorical Reading: How Evolutionists Read 'The Spandrels of San Marco'." Understanding Scientific Prose. Ed. Jack Selzer. Madison: University of Wisconsin Press, 1993. 203-31.

Charvat, William. The Profession of Authorship in America, 1800-1870: The Papers of William Charvat. Ed. Matthew J. Bruccoli. Columbus, Ohio: Ohio State University Press, 1968.

Clark, Herbert H. Using Language. Cambridge: Cambridge University Press, 1996.

Clemens, Samuel Langhorne. 3,000 Years among the Microbes. In Which Was the Dream? Ed. John S. Tuckey. Berkeley: University of California Press, 1968. 433-553.

---. "The American Claimant." The American Claimant and Other Stories and Sketches. Mississippi ed. New York: Harper & Brothers, 1923.

---. The Autobiography of Mark Twain. Ed. Charles Neider. New York, NY: HarperCollins Publishers, Inc., 2000.

---. A Connecticut Yankee in King Arthur's Court. New York: Grosset & Dunlap, 1945.

---. Christian Science. The Writings of Mark Twain. Vol. 25. New York: Harper and Brothers Publishers, 1907.

---. "Double-Barreled Detective Story." Harper's New Monthly January 1902.

---. Early Tales and Sketches. Works of Mark Twain. Eds. Edgar Marquess Branch, Robert H. Hirst and Harriet Elinor Smith. Vol. 1, 1851-1864. Berkeley, California: University of California Press, 1979.

---. Following the Equator. New York: Doubleday & McClure Co., 1894.

---. Mark Twain of the Enterprise: Newspaper Articles & Other Documents 1862-1864. Ed. Henry Nash Smith. Berkeley, California: University of California Press, 1957.

---. Mark Twain's Letters. The Mark Twain Papers. Eds. Edgar Marquess Branch, Michael B. Frank and Kenneth M. Sanderson. Vol. 1, 1853-1866. Berkeley, CA: University of California Press, 1988.

---. "Memoranda: A Couple of Sad Experiences." Galaxy 9 (1870): 858-61.

---. "A Petrified Man." Sacramento Union October 9 (1862): 2.

---. "A Petrified Man in Nevada Territory." San Francisco Alta California October 15, 1862.

---. "The Petrified Man." San Francisco Evening Bulletin October 15, 1862.

---. "Petrified Men." Auburn Placer Herald October 18 (1862): 1.

---. "A Private History of a Campaign That Failed." The American Claimant and Other Stories and Sketches. Mississippi ed. New York: Harper & Brothers, 1923.

---. Roughing It. Hartford, CT: American Publishing Company, 1891.

---. "That Piece of Petrified Humanity." Sacramento Bee October 16, 1862.

---. "To the Person Sitting in Darkness." Mark Twain's Weapons of Satire: Anti-Imperialist Writings on the Philippine-American War. Ed. Jim Zwick. Syracuse: Syracuse University Press, 1992.

---. "Washoe Joke." San Franscisco Evening Bulletin. October 15, 1862.

---. "The Washoe Joke." Mark Twain's Western Years. Ed. Ivan Benson. Stanford, California: Stanford University Press, 1938. 175.

Coleridge, Samuel Taylor. Biographia Literaria. Ed. J. Shawcross. Vol. 2. London: Oxford University Press, 1949.

Collins, Paul. "Symmes Hole." Banvard's Folly: Thirteen Tales of People Who Didn't Change the World. New York: Picador USA, 2001. 54-70.

Cook, James W. The Arts of Deception: Playing with Fraud in the Age of Barnum. Cambridge, Massachusetts: Harvard University Press, 2001.

Cooter, Roger, and Stephen Pumfrey. "Separate Spheres and Public Places: Reflections on the History of Science Popularization and Science in Popular Culture." History of Science xxxii (1994): 237-67.

Cope, Edward Drinker. "Letter About the Mountain Alligator." Ed. William Wright. Cheyenne, Wyoming, September 18, 1880. Box 1 fldr. "single

letters," Dan De Quille papers, BANC MSS P-G 246, The Bancroft Library, University of California, Berkeley.

Cosmides, Leda, and John Tooby. "Consider the Source: The Evolution of Adaptations for Decoupling and Metarepresentation." Metarepresentation. Ed. Dan Sperber. Vancouver Studies in Cognitive Science. New York: Oxford University Press, 2000.

Covici, Jr., Pascal. Mark Twain's Humor: The Image of a World. Dallas Texas: Southern Methodist University Press, 1962.

Cox, James M. Mark Twain: The Fate of Humor. Princeton, New Jersey: Princeton University Press, 1966.

Culler, Jonathan. "Literary Competence." Reader-Response Criticism: From Formalism to Post-Structuralism. Ed. Jane P. Tompkins. Baltimore: Johns Hopkins University Press, 1980. 101-17.

Cummings, Sherwood. Mark Twain and Science: Adventures of a Mind. Baton Rouge: Louisiana State University Press, 1988.

De Carvalho, Olavo. "Sokal, a Self-Parodist." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 112-14.

D'eramo, Marco. "Academic Insult in Greenwich Village, and Selected Responses." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 115-18.

Desmond, Adrian. "Artisan Resistance and Evolution in Britain, 1819-1848." Osiris 3 (1987):77-110.

Dickson, David. "The 'Sokal Affair' Takes Transatlantic Turn." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 192-94.

Dinius, Marcy J. "'Hans Phaall,' the Great Moon Hoax, and Popular Science in the Antebellum American Imaginary." Second Annual International Poe Conference. Baltimore, October 3-6, 2002.

Donaldson, Thomas. "Letter About the Eyeless Fish." Ed. William Wright (Col. T. T. Osbiston). Philadelphia, March 7, 1876. Box 1, fldr. "single letters,"

Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, University of California, Berkeley.

Drury, Wells. An Editor on the Comstock Lode. Reno, NV: University of Nevada Press, 1984.

Dwyer, Richard A., and Richard E. Lingenfelter. Dan De Quille, the Washoe Giant: A Biography and Anthology. Western Literature Series. Reno: University of Nevada Press, 1990.

Eberly, Rosa A. Citizen Critics: Literary Public Spheres. Urbana, Illinois: University of Illinois Press, 2000.

Eco, Umberto. Serendipities: Language and Lunacy. London: Weidenfeld and Nicolson, 1998.

Editors of Lingua Franca. The Sokal Hoax: The Sham That Shook the Academy. Lincoln, NB: University of Nebraska Press, 2000.

Eisenstein, Elizabeth. The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early Modern Europe. New York: Cambridge University Press, 1979.

Elmer, Jonathan. Reading at the Social Limit: Affect, Mass Culture, and Edgar Allan Poe. Stanford: Stanford University Press, 1995.

Emerson, Everett H. Mark Twain : A Literary Life. Philadelphia, Pennsylvania: University of Pennsylvania Press, 2000.

Emerson, Ralph Waldo. Early Poems of Ralph Waldo Emerson. New York: Thomas Y. Crowell & Company, 1899. Available http://www.emersoncentral.com/poems/ode_inscribed_to_william_h_channing.htm. November 12, 2002.

"English Papers Express Discredit..." New York Sun 1874. Ctn. 1, Fldr. 120, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

Epstein, Barbara. "Postmodernism and the Left." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 214-29.

Fahnestock, Jeanne. "Accomodating Science: The Rhetorical Life of Scientific Facts." Written Communication 3.3 (1986): 275-96.

Fahnestock, Jeanne and Marie Secor. "Rhetorical Analysis." Discourse Studies in Composition. Eds. Ellen Barton and Gail Stygall. New Jersey: Hampton Press, 2002. 177-200.

---. "The Stases in Scientific and Literary Argument." Written Communication 5 (1998): 427-43.

Faigley, Lester. "Using Text Structure Models for Analyzing Revision." 32nd Annual Conference on College Composition and Communication. Dallas, March 1, 1981.

Falk, Doris V. "Thomas Low Nichols, Poe, and the "Balloon Hoax"." Poe Studies 5.2 (1972): 48-49.

Fedler, Fred. Media Hoaxes. Ames: Iowa State University Press, 1989.

Ferguson, DeLancey. "The Petrified Truth." Colophon II (n.s.) 2 (1937).

"The Fish Hoax." San Francisco Stock Report 1876. Ctn. 2, Scrapbk. 2, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

"Those Fish." Grass Valley Union 1876. Ctn. 2, Scrapbk. 2, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

Fish, Stanley. Is There a Text in This Class? The Authority of Interpretive Communities. Cambridge, Massachusetts: Harvard University Press, 1980.

---. "Literature in the Reader: Affective Stylistics." Reader-Response Criticism: From Formalism to Post-Structuralism Ed. Jane P. Tompkins. Baltimore: Johns Hopkins UP, 1980: 70-100.

---. "Professor Sokal's Bad Joke." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 81-84.

Fisher IV, Benjamin Franklin. "Poe's 'Tarr and Fether': Hoaxing in the Blackwood Mode." The Naiad Voice: Essays on Poe's Satiric Hoaxing. Ed. Dennis W. Eddings. Port Washington, NY: Associated Faculty Press, 1983. 136-47.

Fishkin, Shelley Fisher. Lighting out for the Territory: Reflections on Mark Twain and American Culture. New York: Oxford University Press, 1996.

Fleck, Ludwik. Genesis and Development of a Scientific Fact. Trans. Fred Bradley and Thaddeus J. Trenn. Eds. Thaddeus J. Trenn and Robert K. Merton. Chicago: University of Chicago Press, 1981.

Flower, Linda, and John R. Hayes. "A Cognitive Process Theory of Writing." College Composition and Communication 32 (1981): 365-87.

Fludernik, Monika. "Genres, Text Types, or Discourse Modes? Narrative Modalities and Generic Categorization." Style 34.2: 274.

Foucault, Michel. Les Mots Et Les Choses: Une Archaelogie Des Sciences Humaines. Paris: Gallimard, 1966.

Franklin, H. Bruce. Future Perfect: American Science Fiction of the Nineteenth Century. revised ed. New York: Oxford University Press, 1978.

---. "Traveling in Time with Mark Twain." American Literature and Science. Ed. Robert J. Scholnick. Lexington: University Press of Kentucky, 1992. 157-71.

Fusco, Richard. "Poe's Revisions of 'the Mystery of Marie Roget': A Hoax?" Poe at Work: Seven Textual Studies. Ed. Benjamin Franklin Fisher IV. Baltimore: Poe Society, 1978. 91-99.

Gervais, Bertrand. "Reading Tensions: Of Sterne, Klee, and the Secret Police." New Literary History 26 (1995): 855-884.

Golinski, Jan. Science as Public Culture: Chemistry and Enlightenment in Britain, 1760-1820. Cambridge: Cambridge University Press, 1992.

Goodwin, C.C. "Dan and His Quills." Territorial Enterprise 32.3, February 3 (1876): 2.

---. "Dan De Quille." As I Remember Them. Salt Lake City, UT: Salt Lake Commercial Club, 1913. 213-17.

Gottfried, Kurt. "Was Sokal's Hoax Justified?" The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 187-91.

Gould, Stephen Jay. "American Polygeny and Craniometry before Darwin: Blacks and Indians as Separate, Inferior Species." Racial Economy of

Science. Ed. Sandra Harding. online ed. Boulder: Netlibrary, Inc., 1999. 526.

Grice, H. Paul. "Logic and Conversation." Syntax and Semantics. Eds. Peter Cole and J. Morgan. Vol. 3: Speech Acts. New York: Academic Press, 1975. 41-58.

Griffin, Dustin H. Satire: A Critical Reintroduction. Lexington, KY: University Press of Kentucky, 1994.

Gross, Paul, and Norman Levitt. Higher Superstition: The Academic Left and Its Quarrels with Science. Baltimore, Maryland: Johns Hopkins University Press, 1994.

Guthrie, James R. "Broken Codes, Broken Seals, and Stolen Poems in 'The Purloined Letter.'" Edgar Allan Poe Review 3.2 (2002): 92-102.

Hall, Bruce. "Grice, Discourse Representation, and Optimal Intonation" in Papers from the Regional Meetings, Chicago Linguistic Society 2 (1998): 63-78.

Hall, David D. "Readers and Reading in America: Historical and Critical Perspectives." Proceedings of the American Antiquarian Society 103.2 (1993): 337-57.

Hall, Thomas. "Poe's Use of a Source: Davy's Chemical Researches and 'Von Kempelen and His Discovery.'" Poe Newsletter 1.1-2 (1968): 28.

Haraway, Donna Jeanne. Simians, Cyborgs, and Women: The Reinvention of Nature. New York: Routledge, 1991.

Harding, Sandra. "Introduction: Eurocentric Scientific Illiteracy--a Challenge for the World Community." Racial Economy of Science. Ed. Sandra Harding. online ed. Boulder: Netlibrary, Inc., 1999. 526.

Harris, Neil. Humbug: The Art of P.T. Barnum. Boston: Little, Brown, 1973.

Hay, Carolyn D. "A History of Science Writing in the United States and of the National Association of Science Writers." dissertation. Northwestern University, 1970.

Henkel, Jacqueline. "Linguistics and Literature: Lecture Notes." University of Texas at Austin, Fall 1998.

Herschel, John Frederick William. “Letter to Captain C[aldwell].” Feldhausen, South Africa, January 5, 1836. Herschel Family Papers 1721-1951. MSS HERSCHEL. Harry Ransom Center, University of Texas at Austin.

---. “Letter to Robert Treat Paine.” Feldhausen, South Africa, August 26, 1836. Herschel Family Papers 1721-1951. MSS HERSCHEL. Harry Ransom Center, University of Texas at Austin.

Higgins, Lorraine. "Reading to Argue: Helping Students Transform Source Texts." Hearing Ourselves Think: Cognitive Research in the College Writing Classroom. Eds. A. M. Penrose and B. M. Sitko. New York: Oxford University Press, 1993. 70-101.

Hine, Darlene Clark. "Colaborers in the Work of the Lord: Nineteenth-Century Black Women Physicians." Racial Economy of Science. Ed. Sandra Harding. Boulder: Netlibrary, Inc., 1999. 526.

"Hoax." Oxford English Dictionary. 2nd ed, 1989.

Hoffman, Andrew Jay. Inventing Mark Twain: The Lives of Samuel Langhorne Clemens. New York: William Morrow and Co., 1997.

Hoffman, Daniel. Poe Poe Poe Poe Poe Poe Poe. first ed. Garden City, New York: Doubleday, 1972.

Hume, Beverly A. "Twain's Satire on Scientists: Three Thousand Years among the Microbes." Essays in Arts and Sciences 16 (1997): 71-84.

Inkster, Ian. "The Public Lecture as an Instrument of Science Education for Adults." Paedagogica Historica 20 (1981): 80-107.

Iser, Wolfgang. "Interaction between Text and Reader." The Reader in the Text: Essays on Audience and Interpretation. Eds. Susan R. Suleiman and Inge Crosman. Princeton: Princeton University Press, 1980. 106-19.

Kager, Rene. Optimality Theory. New York: Cambridge University Press, 1999.

Katz, Stephen B. "Narration, Technical Communication, and Culture: The Soul of a New Machine as Narrative Romance." Constructing Rhetorical Education. Eds. Marie Secor and Davida Charney. Carbondale, IL: Southern Illinois University, 1992. 382-402.

Kaufer, David S., and Kathleen M. Carley. Communication at a Distance. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Publishers, 1993.

Kaufer, David S., and Brian S. Butler. Rhetoric and the Arts of Design. Mahwah, New Jersey: Lawrence Erlbaum Associates, 1996.

Kennedy, George. "Literary Rhetoric." Classical Rhetoric and Its Christian and Secular Tradition from Ancient to Modern Times. Chapel Hill, North Carolina: University of North Carolina Press, 1980. 108-19.

Kenner, Hugh. The Counterfeiters: An Historical Comedy. 1968. reprint ed. Baltimore: Johns Hopkins University Press, 1985.

Ketterer, David. "Poe's Usage of the Hoax and the Unity of "Hans Pfaal"." The Naiad Voice: Essays on Poe's Satiric Hoaxing. Ed. Dennis W. Eddings. Port Washington, NY: Associated Faculty Press, Inc., 1983. 88-96.

---. "The 'Science Fiction' of Mark Twain." Mosaic--A Journal for the Interdisciplinary Study of Literature 16.4 (1983): 59-82.

Kintsch, Walter. Comprehension: A Paradigm for Cognition. New York: Cambridge University Press, 1998.

Lagemann, Ellen Condliffe. "Education to 1877." The Reader's Companion to American History. Eds. Eric Foner and John A. Garraty. Boston: Houghton Mifflin Company, 1991. Available http://www.myhistory.org/historytopics/articles/education_to_1877.html

Lascarides, Alex, and Nicholas Asher. "Temporal Interpretation, Discourse Relations, and Commonsense Entailment." Linguistics and Philosophy 16 (1993): 437-93.

Latour, Bruno. Aramis or the Love of Technology. Cambridge, Massachusetts: Harvard University Press, 1996.

---. "Is There Science after the Cold War?" The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 124-26.

---. Science in Action: How to Follow Scientists and Engineers through Society. Cambridge: Harvard University Press, 1987.

Lauber, John. The Making of Mark Twain: A Biography. New York: American Heritage, 1985.

Layton, Edwin. "Mirror-Image Twins: The Communities of Science and Technology." Nineteenth-Century American Science: A Reappraisal. Ed. George H. Daniels. Evanston, Illinois: Northwestern University Press, 1972. 210-30.

Lee, Judith Yaross. "(Pseudo-) Scientific Humor." American Literature and Science. Ed. Robert J. Scholnick. Lexington: University Press of Kentucky, 1992. 128-56.

---. "Fossil Feuds: Popular Science and the Rhetoric of Vernacular Humor." Essays in Arts and Sciences 23 (1994): 1-20.

Lehrer, Keith, and Thomas D. Paxson Jr. "Knowledge, Undefeated Justified True Belief." Essays on Knowledge and Justification. Eds. George S. Pappas and Marshall Swain. Ithaca, New York: Cornell University Press, 1978.

Lightman, Bernard. "'The Voices of Nature': Popularizing Victorian Science." Victorian Science in Context. Ed. Bernard Lightman. Chicago: University of Chicago Press, 1997.

Limon, John. The Place of Fiction in the Time of Science. New York: Cambridge University Press, 1990.

Ljungquist, Kent P. "'Valdemar' and the 'Frogpondians': The Aftermath of Poe's Boston Lyceum Appearance." Emersonian Circles: Essays in Honor of Joel Myerson. Ed. Wesley T. Mott. Rochester, New York: University of Rochester Press, 1997. 181-206.

Locke, Richard Adams. The Celebrated "Moon Story," : Its Origin and Incidents; / with a Memoir of the Author, and an Appendix, Containing, I. An Authentic Description of the Moon; Ii. A New Theory of the Lunar Surface, in Relation to That of the Earth. Ed. William N. Griggs. New York: Bunnell and Price, 1852.

---. The Moon Hoax; or, a Discovery That That Moon Has a Vast Population of Human Beings. Ormond Seavey, ed. The Gregg Press Science Fiction Series. Boston: Gregg Press, 1975.

Loomis, C. Grant. "The Tall Tales of Dan De Quille." California Folklore Quarterly 5.1 (1946): 26-71.

Mabbott, Thomas O., ed. Doings of Gotham in a Series of Letters by Edgar Allan Poe as Described to the Editor of the Columbia Spy; Together with

Various Editorial Comments and Criticisms, by Poe. Pottsville, Pennsylvania: J.E. Spannuth, 1929.

Machor, James L., ed. Readers in History: Nineteenth Century American Literature and the Contexts of Response. Baltimore: Johns Hopkins University Press, 1993.

Mailloux, Steven. Rhetorical Power. Ithaca: Cornell UP, 1989.

Martin, Terence. "The Imagination at Play: Edgar Allan Poe." The Naiad Voice: Essays on Poe's Satiric Hoaxing. Ed. Dennis W. Eddings. Port Washington, NY: Associated Faculty Press, 1983. 29-40.

Martineau, Harriet. Retrospect of Western Travel. New York, 1838.

Marx, Leo. The Machine in the Garden: Technology and the Pastoral Ideal in America. New York: Oxford University Press, 1964. 2000.

Matthew, Marie-Louise Nickerson. "Forms of Hoax in the Tales of Edgar Allan Poe." dissertation. Columbia University, 1975.

Miller, Carolyn R. "Genre as Social Action." Quarterly Journal of Speech 70.2 (1984): 151-67.

Miller, Howard S. "The Political Economy of Science." Nineteenth-Century American Science: A Reappraisal. Ed. George H. Daniels. Evanston, Illinois: Northwestern University Press, 1972. 95-112.

Moss, Sidney P. Poe's Literary Battles: The Critic in the Context of His Literary Milieu. Durham, North Carolina: Duke University Press, 1963.

Mott, Frank Luther. American Journalism: A History. New York: Macmillan, 1962.

---. A History of American Magazines: 1741-1850. Vol. 1. 5 vols. Cambridge, Massachusetts: Harvard University Press, 1968.

---. A History of American Magazines: 1850-1865. Vol. 2. 5 vols. Cambridge, Massachusetts:: Harvard University Press, 1968.

Myers, Greg. "19th Century Popularizers of Thermodynamics and the Rhetoric of Social Prophecy." Victorian Studies 29 (1985): 35-66.

---. "The Social Construction of Two Biologists' Proposals." Written Communication 2.3 (1985): 219-45.

---. Writing Biology: Texts in the Social Construction of Scientific Knowledge. Madison, Wisconsin: University of Wisconsin Press, 1990.

Nelkin, Dorothy. Selling Science: How the Press Covers Science and Technology. revised ed. New York: W.H. Freeman, 1995.

O'Brien, Fitz-James. "How I Overcame My Gravity." Harper's New Monthly Magazine 28.163 (1863): 779-82.

Omicinski, John. "Hoax Article Yanks Academic's Legs." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 93-95.

Ong, Walter J. Orality and Literacy: The Technologizing of the Word. New York: Methuen, 1982.

Orvell, Miles. The Real Thing: Imitation and Authenticity in American Culture 1880-1940. Chapel Hill: University of North Carolina Press, 1989.

Osborne, Peter. "Friendly Fire: The Hoaxing of Social Text." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 195-99.

Paine, Albert Bigelow. Mark Twain: A Biography. New York: Harper & Brothers, 1912.

Paul, Danette, Davida Charney, and Aimee Kendall. "Moving Beyond the Moment: Reception Studies in the Rhetoric of Science." Journal of Business and Technical Communication 15.3 (2001): 372-99.

Perlman, David. "Science and the Mass Media." Science and Its Public: The Changing Relationship. Eds. Holton G. and W. Blanpied. Dordrecht and Boston, 1976. 245-60.

Poe, Edgar Allan. "The Balloon-Hoax." The Complete Tales and Poems of Edgar Allan Poe. New York: Modern Library, 1938.

---. Eureka: A Prose Poem. 1848 G.P. Putnam. New York: Prometheus Books, 1997.

---. "The Facts in the Case of M. Valdemar." The American Review: A Whig Journal December 1845: 561-65.

---. "Fifty Suggestions." Edgar Allan Poe: Essays and Reviews. Ed. G.R. Thompson. Library of America. New York: Literary Classics of the United States, 1984. 1297-1308.

---. "The Facts in the Case of M. Valdemar." The Complete Tales and Poems of Edgar Allan Poe. New York: Modern Library, 1938.

---. "Hans Phaall--a Tale." Southern Literary Messenger June 1835: 565-80. Available http://www.hti.umich.edu/cgi/t/text/text-idx?c=moajrnl&idno=acf2679.0001.010&sid=. October 2001.

---. "Maelzel's Chess-Player." The Complete Tales and Poems of Edgar Allan Poe. New York: Random House, 1938. 421-39.

---. "Letter to B____." Edgar Allan Poe: Essays and Reviews. Ed. G.R. Thompson. Library of America. New York: Literary Classics of the United States, 1984. 5-12.

---. Letters of Edgar Allan Poe. Ed. John Ward Ostrom. Vol. 1. 2 vols. Cambridge, Massachusetts: Harvard University Press, 1948.

---. Letters of Edgar Allan Poe. Ed. John Ward Ostrom. Vol. 2. 2 vols. Cambridge, Massachusetts: Harvard University Press, 1948.

---. Literati--Laughton Osborn. holograph. William H. Koester Edgar Allen Poe Collection, Harry Ransom Center, University of Texas at Austin, Austin, Texas.

---. The Literati of New York City: Richard Adams Locke. February 21, 2000 October 1846. web page. E. A. Poe Society. Available: http://www.eapoe.org/works/misc/litratb6.htm. January 4 2001.

---. "MS Found in a Bottle." Complete Stories and Poems of Edgar Allan Poe. New York: Doubleday, 1966. 148-55. ---. "Note to "Hans Phaall"." The Moon Hoax; or, a Discovery That That Moon Has a Vast Population of Human Beings. Ed. Ormond Seavey. Boston: Gregg Press, 1975. 69-74.

---. "Note to "Hans Phaall"." The Moon Hoax; or, a Discovery That That Moon Has a Vast Population of Human Beings. Ed. Ormond Seavey. Boston: Gregg Press, 1975. 69-74.

---. "A Predicament." The Complete Tales and Poems of Edgar Allan Poe. New York: Modern Library, 1938.

---. “Sonnet—to Science." The Raven and Other Poems. New York: Wiley and Putnam, 1845. 55. Available http://www.eapoe.org/works/poems/sciencej.htm

---. "Von Kempelen and His Discovery." The Complete Tales and Poems of Edgar Allan Poe. New York: Modern Library, 1938.

Pollin, Burton R. "Poe's 'Von Kempelen and His Discovery': Sources and Significance." Etudes Anglaises 20 (1967): 12-23.

Pope, Alexander. Rape of the Lock. Bedford Cultural Editions. Ed. Cynthia Wall. Boston: Bedford Books, 1998.

Porter, Theodore M. Trust in Numbers: The Pursuit of Objectivity in Science and Public Life. Princeton, New Jersey: Princeton University Press, 1995.

Quinn, Arthur Hobson. Edgar Allan Poe, a Critical Biography. New York: Appleton-Century-Crofts, Inc., 1941.

Radway, Janice. Reading the Romance: Women, Patriarchy and Popular Literature. London: Verso, 1987.

Railton, Stephen. Southwest Humor. 2001. webpage. Electronic Text Center, University of Virginia. Available: http://etext.lib.virginia.edu/railton/huckfinn/suggs.html. October 14 2002.

Ramsay, Arch. “Letter to Edgar Allan Poe.” October 20, 2001. 1846. web page. Edgar Allan Poe Society. Available: http://www.eapoe.org/misc/letters/t4611300.htm. January 10 2002.

Robbins, Bruce, and Andrew Ross. "Response: Mystery Science Theater." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 54-58.

Roggenkamp, Karen S. H. “The Sun, the Moon, and Two Balloons: Edgar Allan Poe, Literary Hoaxes, and Penny-Press Journalism.” 2001. webpage. Available: http://roggenkamp.com/poe.html. March 11 2002.

Rosen, Ruth. "A Physics Prof Drops a Bomb on the Faux Left." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 88-90.

Ross, Joan Belcourt. "Mark Twain and the Hoax." dissertation. Purdue, 1974.

Rourke, Constance. American Humor. New York: Harcourt Brace, 1931. Available http://xroads.virginia.edu/~HYPER/rourke/cover.html

Russett, Cynthia E. Darwin in America. San Francisco: W.H. Freeman and Company, 1976.

Schauber, Ellen, and Ellen Spolsky. The Bounds of Interpretation. Stanford: Stanford University Press, 1986.

Schriver, Karen. "Teaching Writers to Anticipate Readers' Needs: A Classroom-Evaluated Pedagogy." Written Communication 9.2 (1992): 179-208.

Schudson, Michael. Discovering the News: A Social History of American Newspapers. New York: Basic Books, 1978.

---. The Good Citizen: A History of American Civic Life. New York: Free Press, 1998.

Searle, John. "The Logical Status of Fictional Discourse." Expression and Meaning. Cambridge: Cambridge UP, 1979: 58-75.

Secord, James A. Victorian Sensation. Chicago: University of Chicago Press, 2000.

Seebach, Linda. "Scientist Takes Academia for a Ride with Parody." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 71-73.

Seltzer, Mark. Bodies and Machines. New York: Routledge, 1992.

Shapin, Steven. "Pump and Circumstance: Robert Boyle's Literary Technology." Social Studies of Science 14 (1984): 481-520.

---. "Science and the Public." The Companion to the History of Modern Science. Eds. R.C. Olby, et al. New York: Routledge, 1990. 990-1006.

Sicherman, Barbara. "Sense and Sensibility: A Case Study of Women's Reading in Late-Victorian America." Reading in America: Literature & Social History. Ed. Cathy N. Davidson. Baltimore, Maryland: Johns Hopkins University Press, 1989.

Smith, Carlota S. Modes of Discourse. Cambridge: Cambridge University Press, 2003.

Snow, C.P. The Two Cultures: And a Second Look. New York: New American Library, 1963.

Sokal, Alan. "Reply to Michael Bérubé." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 143-45.

---. "A Plea for Reason, Evidence, and Logic." Personal homepage. Available http://www.physics.nyu.edu/~as2/nyu_forum.html. March 6, 2003.

---. "Revelation: A Physicist Experiments with Cultural Studies." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 49-53.

---. "Transgressing the Boundaries: Towards a Transformative Hermeneutics of Quantum Gravity." Social Text 46/47 (1996): 217-52.

---. "Transgressing the Boundaries: An Afterword." Philosophy and Literature 20.2 (1996): 338-46.

Sokal, Alan, and Jean Bricmont. Intellectual Impostures: Postmodern Philosophers' Abuse of Science. London: Profile, 1999.

Sperber, Dan, and Deirdre Wilson. Relevance: Communication and Cognition. Cambridge, Massachusetts: Harvard University Press, 1986.

Stewart, Larry. The Rise of Public Science: Rhetoric, Technology, and Natural Philosophy in Newtonian Britain, 1660-1750. Cambridge: Cambridge University Press, 1992.

Stoehr, Taylor. Hawthorne's Mad Scientists: Pseudoscience and Social Science in Nineteenth-Century Life and Letters. Hamden, Connecticut: Archon Books, 1978.

Swales, John. "Research Articles in English." Genre Analysis: English in Academic and Research Settings. Cambridge, UK: Cambridge University Press, 1990. 110-76.

Swift, Jonathan. A Modest Proposal. Merrill Literary Casebook Series. Ed. Charles Beaumont. Columbus, Ohio: Charles H. Merrill Publishing Co., 1969.

Swirski, Peter. Between Literature and Science: Poe, Lem, and Explorations in Aesthetics, Cognitive Science, and Literary Knowledge. Montreal: McGill-Queen's University Press, 2000.

Tebeaux, Elizabeth. The Emergence of a Tradition: Technical Writing in the English Renaissance, 1475-1640. Baywood's Technical Communications Series. Amityville, New York: Baywood Publishing Co., Inc., 1997.

Thomas, Dwight, and David K. Jackson. The Poe Log: A Documentary Life of Edgar Allan Poe 1809-1859. Boston, Massachusetts: G.K. Hall and Company, 1987.

Thompson, G.R. "Is Poe's 'A Tale of the Ragged Mountains' a Hoax?" Studies in Short Fiction 6 (1969): 454-60.

Tichi, Cecilia. Shifting Gears: Technology, Literacy, and Culture in Modernist America. Chapel Hill: University of North Carolina Press, 1987.

Tompkins, Jane. Sensational Designs: The Cultural Work of American Fiction, 1790-1860. New York: Oxford University Press, 1985.

---. "The Reader in History." Reader-Response Criticism : From Formalism to Post-Structuralism. Ed. Jane P. Tompkins. Baltimore: Johns Hopkins University Press, 1980. 201-32.

Van Dijk, Teun. "News Schemata." Studying Writing. Linguistic Approaches. Eds. S. Greenbaum and Cooper. Beverly Hills, California: Sage Books, 1986. 155-86.

Vera, Alonso H., and Herbert A. Simon. "Situated Action: A Symbolic Interpretation." Cognitive Science 17 (1993): 7-48.

Vigliotta, Anthony. U.S. Trade Dollars 1873-1885. Fall 1999. web article. FUN-Topics 44:3. Available: http://www.funtopics.com/fun_topics_v44n3_vigliotta.html. September 30 2002.

Voltaire. Candide. Trans. Shane Weller. New York: Dover, 1993.

Wadlington, Warwick. The Confidence Game in American Literature. Princeton: Princeton University Press, 1975.

Waggoner, Hyatt Howe. "Science in the Thought of Mark Twain." American Literature 8.4 (1937): 357-70, 445-47.

Walsh, Lynda. “Optimality Theory and Re-reading ‘The Garden of the Forking Paths,’” forthcoming in Proceedings of the Student Conference in Linguistics *(*SCIL*)* 11. Cambridge, Mass.: MIT Working Papers in Linguistics. 23-page ms.

Weinberg, Steven. "Sokal's Hoax, and Selected Responses." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 148-71.

Welch, Kathleen. Electric Rhetoric. Cambridge, Massachusetts: M.I.T. Press, 1999.

Welsh, Susan Booker. "Edgar Allan Poe and the Rhetoric of Science." dissertation. Drew University, 1986.

Wilson, James D. "'The Monumental Sarcasm of the Ages': Science and Pseudoscience in the Thought of Mark Twain." South Atlantic Bulletin: A Quarterly Journal Devoted to Research and Teaching in the Modern Languages and Literatures 40.2 (1975): 72-82.

Witmore, Michael. Culture of Accidents : Unexpected Knowledges in Early Modern England. Stanford, California: University of California Press, 2001.

Wright, William. "Astounding Discovery.--Extraordinary Advance in Science--a Savant Makes an Egg and Hatches Therefrom a Live Bird." Territorial Enterprise 32, February 19 (1876): 1.

---. The Big Bonanza. Ed. Oscar Lewis. New York: Apollo Editions, 1947.

---. "The Boss Rain-Maker: Uncle Jess Slade's Strange Discovery--Tapping the Clouds with a Shotgun--Rain and Snow Produced to Order--the Veracious Tale of an Old-Timer." San Francisco Chronicle April 1892: 1. Ctn. 1, Fldr. 8, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. “Copper Mines of Nevada: A Large Region That Is Full of Copper Belts: Rich in Precious Stones: Early Attempts Atcopper Smelting--Ores Shipped to Liverpool--the Manufacture of Acids and Bluestone--Copper Belts of Lander and Humboldt Counties--the Big Copper Belt in Nye County.” clipping. Ctn. 1, Fldr. 50, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. "A Curious Story..." London Daily Telegraph August 3 (1874): 5.

---. Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. Dives and Lazarus. Ed. Lawrence I. Berkove. Ann Arbor, Michigan: Ardis Publishers, 1988.

---. "The Divining Rod." Mining Industry and Tradesman: 171-72. Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. "Eyeless Fish That Live in Hot Water: From the Territorial." February 29, 1876. Ctn. 1, Fldr. 120, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. "A Fish Story." Territorial Enterprise February 18 1876. Ctn. 2, Scrapbk. 2, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. "Fishy." Territorial Enterprise 1876. Ctn. 2, Scrapbk. 2, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. "Letter to 'Sister,' probably Lou Wright." Virginia City, August 23, 1874. Box 1, Fldr. 20, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. "Melted Snow Power.--Swiss Towns That Utilize the Mountain Streams. clipping from Cassier's Magazine." Ctn. 1, Fldr. 50, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. "A Mystery Explained.--the Sequel to the Strange Death of Jonathan Newhouse, the Inventor of the Solar Armor." Territorial Enterprise August 30, 1874. Ctn. 1, Fldr. 120, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. "On Exhibition." Territorial Enterprise 1876. Ctn. 2, Scrapbk. 5, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. "Quille Drops--Those Pre-Historic Tracks." Territorial Enterprise (?) November 23, 1885: 1. Ctn. 1, Fldr. 8, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. Reporting with Mark Twain. San Francisco: California Publishing Company, 1893.

---. "Sad Fate of an Inventor." Virginia City Territorial Enterprise July 2 (1874): 2.

---. "Sad Fate of a Nevada Inventor." Scientific American July 25 1874: 51.

---. "Salad Days of Mark Twain: Dan De Quille Tells of His Reporter's Life in Nevada." San Francisco Examiner. March 19 (1893): 13-14.

---. “Silica Tonic.” clipping. Ctn. 1, Fldr. 49, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. "State Mineralogist--the Duties of the Office Defined." reprinted from Enterprise. Ctn. 1, Fldr. 8, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. "Those Fish Accounted For." Territorial Enterprise 1876. Ctn. 2, Scrapbk. 2, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. "Too Successful." London Times 28,065, July 27 (1874): 4.

---. "Traveling Stones." Territorial Enterprise 15.75, October 26 (1867): 3.

---. "The Tricks of Miners." The Engineering and Mining Journal June 11,1892: 618. Ctn.1, Fldr. 51, Dan De Quille papers, BANC MSS P-G 246, The Bancroft Library, University of California, Berkeley.

---. "Undesirable Thriftiness." Salt Lake Daily Tribune March 6, 1892.

---. "Washoe Rambles a Visit to Steamboat Springs." Golden Era 1861. Ctn. 2, Scrapbk. 3, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. “A Wonder in Medicine. The Details of a Series of Most Marvelous Experiments. The Action of Medicines Upon Hypnotized Patients--Incomprehensible Phenomena in Connection with Animal Magnetism--a Problem.” clipping from the San Francisco Chronicle. Ctn. 1, Fldr. 50, Dan De Quille Papers, BANC MSS P-G 246, Bancroft Library, Berkeley, California.

---. "The Wonder of the Age: A Silver Man" Golden Era 13.10 (1865): 3-4.

Yemma, John. "Hokum for High-Brows." The Sokal Hoax: The Sham That Shook the Academy. Ed. Editors of Lingua Franca. Lincoln, NB: University of Nebraska Press, 2000. 79-80.

Zunshine, Lisa. "Eighteenth-Century Print Culture and the "Truth" of Fictional Narrative." Philosophy and Literature 25.2 (2001): 215-32.

Zwaan, Rolf. "Effect of Genre Expectations on Text Comprehension." Journal of Experimental Psychology: Learning, memory, and Cognition 20.4 (1994): 920-33.

Zwick, Jim. Mark Twain and Imperialism in Anti-Imperialism in the United States, 1898-1935. 2002. Available: http://www.boondocksnet.com/ai/twain/index.html. August 18, 2002.

Vita

Lynda Christine Walsh (née Olman) was born in Albuquerque, New Mexico, on November 17, 1971, the daughter of Melvin Dennis Olman and Mary Esther Olman. She was graduated from Sandia High School, Albuquerque, New Mexico, in 1990 and then enrolled at The Colorado College, where she achieved her Bachelor of Arts degree in English in May 1994. From 1995 to 1996, she taught sixth grade at Hope Christian School in Albuquerque, New Mexico. In September 1996, she entered the Graduate School at The University of Texas at Austin. She received her Master of Arts degree in linguistics in May 1998. In September 1999 she entered the doctoral program in the Department of English at The University of Texas at Austin with a dual concentration in Rhetoric/English Language and Linguistics. She taught for three years in the English Department as an Assistant Instructor. In June 2001, she married Patrick Walsh of Clarks Summit, Pennsylvania. She published an article based on a chapter of her dissertation, "What is a Hoax? Redefining Poe's *Jeux d'Esprit* and His Relationship to His Readership," in the Winter 2003 issue of Text, Practice, Performance. Another article, on the rhetoric of the Delphic oracle, is forthcoming in the Summer 2003 issue of Rhetoric Society Quarterly.

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